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# CANADA'S DEFENCE PROGRAMME

—  
1949-50

Issued under authority of

**HON. BROOKE CLAXTON,**  
Minister of National Defence

OTTAWA  
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PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY  
1949



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# Canada's Defence Program, 1949-50

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## PART I

### INFORMATION ON DEFENCE

1. This paper is concerned with the problem of the defence of Canada. The nature of a possible attack on Canada must be considered as well as any commitments in support of those nations with which we are now closely associated.

2. Defence is no longer the concern of the soldier alone. It is the concern of each individual. In effect, the pressure of the times compels the soldier to see his role as being essential to citizenship, and forces the citizen to take thorough account of those military measures needed to preserve his freedom intact.

3. In order that the consideration of defence matters may be based on the fullest factual material available it has been the custom of the Minister of National Defence to issue information from time to time as to the policy and plans of the Department of National Defence. Already distributed are the two pamphlets, *Canada's Defence*, and *Canadian Defence Planning*. The first is based largely on the speech of July, 1947, when the estimates of the Department of National Defence were presented, and the latter is a reprint of the estimate speech delivered in the House of Commons at Ottawa in June, 1948.

4. The present statement should be read in conjunction with the report of the Department covering the fiscal year ending March 31, 1949, tabled on October 19, 1949.



## PART II

### THE INTERNATIONAL SITUATION

5. Canada is the third greatest trading nation in the world with the largest per capita foreign trade of any country; we enjoy one of the highest standards of living and have immense resources awaiting development. Canada has a great stake in international security and stability. We want conditions to exist abroad in which we can proceed with the orderly development of our resources at home. Two world wars have shown the futility of any one nation attempting by itself to avoid war. What was obviously needed was an international organization among like-minded nations in order to assure peace by their collective efforts. It was in the belief that in this direction lay the road to an enduring peace that Canada entered whole-heartedly into the new United Nations at the close of the war. In accepting membership we were not, of course, expecting miracles. We appreciated that the road to peace was a long and arduous one and that with other members we should have to assume continuous responsibilities for the building and maintenance of peace. The people of Canada, through their representatives in Parliament, clearly indicated that they were prepared to accept these responsibilities. The Charter of the United Nations merely provided the legal and institutional foundations on which it was hoped a peace organization would quickly be established. It was with a sense of the urgency of the post-war situation that our present Prime Minister at the first Assembly of the United Nations urged the Security Council to get on with the task of organizing the military arrangements which were proposed in the Charter. As everyone knows, however, no substantial progress has so far been made through the institutions of the United Nations. The Iron Curtain has cast its sinister shadow over Lake Success as it has over Europe.

#### *The North Atlantic Treaty*

6. Eighteen months ago many people thought that the pressure of communist ambition would soon burst out in open aggression. It became apparent that the best way to prevent aggression pending the strengthening of the United Nations was to form a compact group of western nations whose common interest in maintaining peace would join them together in their common defence. The first step was taken over a year ago with the signing of the Treaty of Brussels in March, 1948, by the United Kingdom, France, Belgium, the Netherlands and Luxembourg. The consummation of Western Union on March 17, 1948, was followed immediately by strong expressions of support by the President of the United States and the Prime Minister of Canada, leading on to the North Atlantic Treaty. Among the first to suggest such a treaty was the present Prime Minister in a speech given at the United Nations Assembly on September 18, 1947. The first country to ratify the Treaty was Canada. Canada signed the Treaty in April, 1949, and ratified it on May 3, in consequence of the resolution approved without a dissenting vote by the Senate on April 28, and the House of Commons on April 29. The Treaty which had been signed on April 4 came into effect by the deposit of the required ratifications on August 24, 1949.



7. By the terms of the Treaty the Parties undertake "to settle any international disputes in which they may be involved by peaceful means" (Article 1) and to "contribute toward the further development of peaceful and friendly international relations by strengthening their free institutions" and to "encourage economic collaboration" (Article 2). Article 3 states "the Parties separately and jointly, by means of continuous and effective self-help and mutual aid, will maintain and develop their individual and collective capacity to resist armed attack". The Parties agree to "consult together whenever, in the opinion of any of them, the territorial integrity, political independence or security of any of the Parties is threatened" (Article 4).

Article 5 reads: "The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all; and consequently, they agree that, if such an armed attack occurs, each of them, in the exercise of the right of individual or collective self-defence recognized by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area.

"Any such armed attack and all measures taken as a result thereof shall immediately be reported to the Security Council. Such measures shall be terminated when the Security Council has taken the measures necessary to restore and maintain international peace and security."

Article 6 asserts that: "For the purpose of Article 5 an armed attack on one or more of the Parties is deemed to include an armed attack on the territory of any of the Parties in Europe or North America, on the Algerian departments of France, on the occupation forces of any Party in Europe, on the islands under the jurisdiction of any Party in the North Atlantic area north of the Tropic of Cancer or on the vessels or aircraft in this area of any of the Parties."

Article 11 provides in part that: "This treaty shall be ratified and its provisions carried out by the parties in accordance with their respective constitutional processes."

8. This defensive pact is intended neither to supersede nor to by-pass the United Nations Organization, but rather to help create the conditions under which the United Nations may become an effective instrument of international peace. The purpose of the North Atlantic Treaty is to establish the joint strength of the democratic countries, and, by making aggression clearly unprofitable, give the western nations the opportunity to combat communism, not in the field of war, but in the field of ideas, of practical living and of peace.

"This is more than a treaty for defence. We must, of course, defend ourselves, and that is the first purpose of our pact; but, in doing so, we must never forget that we are now organizing force for peace so that peace can one day be preserved without force."\*

#### *The North Atlantic Organization*

9. The North Atlantic Council, consisting of Foreign Ministers as provided for in the Treaty, met on September 17. The Defence Committee,

\* Speech at signing of North Atlantic Treaty, the Honourable L. B. Pearson, April, 1949.

consisting of the Defence Ministers, met on October 5, and the Military Committee, consisting of Chiefs of Staff, on October 6. Meetings of the Regional Groups and the Military Production and Supply Board are being held early in November, and the Defence Committee will hold its second meeting later this year.

10. The North Atlantic Treaty is today a reality. The preliminary work of organization is well advanced. Twelve nations have banded themselves together to resist aggression. The western democracies have shown the capacity as well as the will to work together in their common interest to prevent aggression and preserve the peace. Since March 17, 1948, the threat and the fear of immediate war have been materially reduced.

11. The pact also represents a major development in the foreign policies of the United States and of Canada; it is a recognition of the interdependence of all nations, a demonstration of the way in which modern science and industry have shrunk the world.

#### *Defence Implications*

12. It is still too early to spell out the consequences of the pact in terms of men and dollars. One thing must be emphasized: the North Atlantic Treaty is a pact for peace. Its final result will not be to increase the expenditures which every nation on our side must make. By pooling resources, the effect of the pact should be to reduce the total expenditures which each of the twelve countries would have found necessary for their security had there been no pact. However, that result is some distance off and in the meantime, Canada will have to make such modifications of her plans as may be found necessary to meet the situation. While the North Atlantic Treaty makes for security, it will only be effective insofar as it represents a pooling of strength rather than a dilution of strength.

13. At the meeting of Defence Ministers on October 5 the North Atlantic Nations requested that the Regional Groups should complete their organization early in November. Strategical planning will then be undertaken by representatives of the nations in each group. Those plans will be coordinated by the Military Committee Standing Group composed of representatives of the Chiefs of Staff of France, the United Kingdom and the United States. In this way there will be prepared an overall strategical plan with an indication of its requirements and how they will be met. Requirements of equipment will be referred to the Military Production and Supply Board. Reports on progress will be made at the second meeting of the Defence Committee.

14. While the strategy of the North Atlantic Powers has not yet been formally stated, our participation in planning for the defence of this continent and of the Western Union gives a clear indication of the main lines of strategy though they may not have been put into words. Our planning has been flexible and can be adapted to any responsibilities we may assume.

15. The view of the Joint Chiefs of Staff of the United States, was given in a statement by General Bradley on July 29 this year during the hearings of the Committee on Foreign Affairs of the House of Representatives, in connection with the Mutual Defence Assistance Act of 1949. General Bradley said:

"In our approach to this arms-aid program, the Joint Chiefs of Staff have followed the principle that the man in the best position, and with the capability, should do the job for which he is best suited.

Further, our recommendations for this program have been predicated upon this basic principle, and the following assumed factors:

First, the United States will be charged with the strategic bombing.

We have repeatedly recognized in this country that the first priority of the joint defence is our ability to deliver the atomic bomb.

Second, the United States Navy and the Western Union naval powers will conduct essential naval operations, including keeping the sea lanes clear. The Western Union and other nations will maintain their own harbour and coastal defense.

Third, we recognize that the hard core of the ground power in being will come from Europe, aided by other nations as they can mobilize

Fourth, England, France, and the closer countries will have the bulk of the short-range attack bombardment, and air defense. We, of course, will maintain the tactical air force for our own ground and naval forces, and United States defence.

Fifth, other nations, depending upon their proximity or remoteness from the possible scene of conflict, will emphasize appropriate specific missions.

The essence of our over-all strategy is this: there is a formidable strength, and an obvious economy of effort, resources, and manpower in this collective strategy, when each nation is capable of its own defense, as part of a collective strategic plan. For that reason, the Joint Chiefs of Staff urge the enactment of this legislation now, when it will do the most good for each of these nations as well as our own security.

We believe that we should not go further than this in discussion of strategy, even though the details of these strategic plans are even more convincing concerning the effect of this aid program on our own security.

Finally, we all recognize that some of the nations which seek this assistance signed the Atlantic Pact with a hope that we would share our military resources, from our storehouses and our production, with those men who have staked their lives in the common cause so close to the point of possible aggression."

16. As chairman of the Standing Group of the Chiefs of Staff appointed under the North Atlantic Treaty, the views of General Bradley have great significance. In an important article in *The Saturday Evening Post* for October 15, 1949, explaining and supplementing this statement, General Bradley said:

"the more I work in our plans for defense, the more I am convinced that war is **not** inevitable; and that our defense plans can be part of a strategy for a lasting peace.



War is not impossible. . . . But I believe it is unlikely. I believe it can be made increasingly unlikely by our own behaviour—if only the American people can adhere to a wise and steadfast course of conduct through the years. . . .

There is no absolute security in the world today. But there is relative security, and a way to make that relative security stronger. . . .

Once we have established reasonable defensive forces, in combination with our friends of the Atlantic Pact, the likelihood of an attack against us will be slight. . . .

I mean (by reasonable defensive forces) forces of such strength that any potential enemy must recognize (a) that it would be foolhardy for him to start a war against us, and (b) that it would be foolhardy for us to start a war against him. I believe that such an equilibrium of forces can be established, and held stable through the years until more civilized long-range solutions can be found."

### PART III

#### DEFENCE OBJECTIVES OF CANADA

##### *Canada's Defence Purposes*

17. In 1948 Canada's defence aims and objectives were set out as being:

- (1) to provide the force estimated to be necessary to defend Canada against any sudden direct attack that could be or is likely to be directed against it in the near future;
- (2) to provide the operational and administrative staffs, equipment, training personnel and reserve organization which would be capable of expansion as rapidly as necessary to meet any need; and,
- (3) to work out with other free nations plans for joint defence based on self-help and mutual aid as part of a combined effort to preserve peace and to restrain aggression.

18. Several factors now combine to make it possible to be still more precise in the definition of the objectives of our defence policy. Communist declarations and Communist actions since the termination of hostilities have united the western nations in the North Atlantic Treaty and united the people within each nation. The attitude of the Communists has simplified for all countries the problem of adjusting national interests to international needs.

19. The only kind of war which would involve Canada would be a war in which Communism was seeking to dominate the free nations, in other words, a war in which we would be fighting for the one thing which we value more than life itself, and that is our freedom as a nation and our freedom as people—freedom to speak and meet and vote and worship as we like. Such a war would be a war for survival. The best way in which to achieve victory in any war is to defeat the enemy in his own land. The right place to defend Canada and what Canadians believe in is as far away from Canada as possible. The right way to preserve peace or to achieve victory is to work with others.

20. The mobilization of all our resources would not enable Canada alone to meet an attack concentrated on Canada, and it is doubtful if there are more than one or two countries which could meet such an attack—hence the need for collective action and collective defence.

21. As already pointed out, Canada would only be involved as part of a general conflagration. One thing that we have done and that we must continue to do is to estimate the risks of a direct attack upon Canada that would be incident to a world-wide conflict, having regard to what we know about the resources of the only potential aggressor and the various ways in which those resources might be employed.

22. As it is obvious that Canada will never be called upon to stand alone against Communism, our defence policy assumes that our armed forces will be used in association with those of friendly powers. The most likely kind of attack from outside on Canada anticipated by the best informed opinion in the foreseeable future would be in the form of diversionary raids, designed to panic North America into diverting a disproportionate amount of effort into passive, local defence ("static defence").

23. The defence of Canada and the defence of Western Europe are ultimately one operation. The government's plans must consider all defence measures as aiming towards three objectives:

- (1) meeting immediate needs for local defence, here and now;
- (2) preparing local defences as needed in the future; and
- (3) contributing to a plan for western security.

24. The development of these three phases must proceed at a pace which will neither be so slow as to leave us unprepared at any point, nor so hasty as to over-burden the economy with the production of war materials much of which would become obsolete. If war is close and inevitable then all nations are doing too little to meet it. If war is not inevitable, or if it is remote, we may be doing too much.

25. Canada is a member of two regional groups—the North American Group and the North Atlantic Ocean Group. With the United States we shall participate actively in the planning of the western European nations in much the same way as we participated in the work of Western Union.

26. In the organization of the North American Group, the United States and ourselves will continue to work together on our joint defence, with changes to fit into the pattern of the North Atlantic organization. All branches of the defence of this continent have been surveyed by the United States and Canada together and the plans worked out are under continuous review.

27. Canada is vitally interested in the work of the North Atlantic Ocean Group. In the Second World War our sailors and ships and aircraft did half the work of convoy necessary to keep the bridgehead in Britain.

#### *Immediate Defence of Canada*

28. While the best available information indicates that there is little likelihood of any direct threat to our national security within the immediate future, the present international position requires that Canada's services should be planned and executed so as to enable us to meet an attack upon the scale that would be likely to be made at any given time as part of a war involving the North Atlantic Treaty powers.

29. Such an attack could only be launched by air or sea. To meet attack by sea requires special training and equipment for anti-submarine and anti-mine warfare. To meet attack by air requires jet interceptors and anti-aircraft guns with the necessary radar equipment and communications system, backed by a relatively small but highly trained, efficient and mobile force of ground troops. The territory of Canada is so vast



that it is obviously impracticable to construct a chain or grid of radar warning stations similar in density and consequent effectiveness to the installations during the last war in the smaller areas of Britain or Germany; nevertheless, an early warning system to cover certain vital approaches and areas is being developed.

30. Whatever form the menace to Canadian territory might assume (and the possibility of this menace must be faced), it would be incidental to the most bitter and widespread conflict ever seen in the world. There hardly remains an inhabited point on the map too remote to be directly affected. Such a conflict, while constituting man's greatest failure to live intelligently with his fellow-men, would also, paradoxically, necessitate a degree of co-operation previously unimagined, among those nations and individuals who value freedom.

#### *Nucleus for Larger Organization*

31. Canada's peacetime forces, besides being prepared for home defence, must contain the organizational and administrative nucleus of the larger forces which an emergency would eventually require. The intensive training of a large number of active and reserve force officers is one of the most important phases of the present program. Canada's reserve forces have increased more than 11 per cent over last year.

32. Science is vital to preparedness. Continual research is necessary to ensure our ability to convert to wartime conditions with the most modern developments. Constant liaison with industry will ensure the production of new equipment with the least possible delay. Since war is not inevitable we cannot afford to maintain arms and men on a wartime basis: as peace is not assured we must be certain that the necessary conversions can be made as quickly and smoothly as possible if war comes.

#### *Push-button Warfare*

33. While the results of modern research are far-reaching in their effect on defence, it is agreed by all authorities that developments such as guided missiles and the atom bomb have not made conventional weapons obsolete. Mastery in the air assumes increasing importance. This is reflected in Canada's defence program by a greater portion of money being allotted to the Air Force than to either of the other services. Nevertheless, a balanced and co-ordinated effort, employing naval-air, army-air and navy-army-air combinations would be necessary in any war in the foreseeable future.

34. Advances made in air-warfare have not obviated the need to seize and hold enemy territory. This can only be done by land forces, in whatever combination with air and naval forces may be necessary.

#### *Main Roles of Navy, Army and Air Force*

35. The direction taken in the development of Canada's forces is determined by the role envisaged for each service in any future conflict.

36. The main task of the Navy would be, as in the last war, the protection of Canadian and allied shipping and Canadian coastal waters. The Navy is constructing ships for this purpose—minesweepers, an ice-breaker and, especially, fast escort vessels. A new type of escort ship designed especially for Canadian needs is under construction.

37. The Army (Active Force) must be prepared to repel any diversionary raid on Canadian territory. Training and experiment in the northland is teaching many lessons on arctic warfare. The Joint Air-Training Centre at Rivers, Manitoba, is devoted to the development of joint-service techniques designed to make the Army a mobile and flexible force, increasingly capable of dealing with any such incursion as might be expected. One infantry battalion has been converted to an air-portable battalion. Another will complete its airborne training by June 1950. The third will commence airborne training next year and a light battery will be converted and air-trained also in 1950.

38. Canada is unable to support the immense production and maintenance burden of a large strategic bombing force. The Canadian air force is concentrating on developing jet-fighter interceptor squadrons, employing the latest and best jet-fighters available. The United States day-fighter, the F86A, will fill one part of the program, and a new Canadian all-weather fighter, the XC-100, designed especially to meet Canadian requirements, is expected to make its first test flights this year.

39. In addition to looking after our home defence our contribution might involve furnishing aircraft, aircrew and ground crew for many different types of air operations.

### *Role of Reserves*

40. Training and equipment of the reserves is progressively more modern and efficient. Interested and trained personnel having adequate buildings and equipment are essential for peacetime training and war-time growth.

41. The importance of reserve organizations in the Second World War is demonstrated by the fact that at the war's end reserve officers furnished to the Canadian Army 60 per cent of the divisional commanders, 85 per cent of the brigadiers and 92 per cent of the unit commanders.

42. The reserve forces provide the means to permit the fulfillment of the equally indispensable functions of the citizen as both soldier and civilian. Increasing size and carefully directed training make this citizen army a vital part of Canada's defence.

## PART IV

### APPROPRIATIONS AND EXPENDITURES

#### *Defence Appropriations*

43. The situation and objectives outlined above can clearly only be met by a defence programme on a larger scale than anything we had before the Second World War. Good intentions and wise plans must be carried into a programme of action which is costing much more than Canada has been accustomed to devote to such purposes.

#### *Form of Defence Estimates*

44. To provide for flexibility in defence arrangements and continuity of planning, this year, as in the previous two years, authority is being sought to make commitments as well as cash expenditures.

45. The main estimates provide for a cash appropriation of \$375 millions for the fiscal year 1949-50. In addition there are supplementary estimates of nearly \$8 millions.

46. The figure for this year is an increase of 50 per cent over the appropriation for 1948-49. Traditionally, Canada has spent relatively little on defence. In the Annual Report at page 82 will be found a table showing defence expenditures from 1925 to date. The average amount spent in the ten years ending March 31, 1938, was \$22 millions. Our present expenditure is seventeen times larger than for these ten years, an increase greater in proportion than that shown by other countries.

#### *Comparisons with Other Countries*

47. Comparisons with other countries are unsatisfactory because each has its own requirements and its own standards. Such comparisons are apt to be misleading unless careful account is taken to make allowances for varying exchange rates and accounting periods, as well as different distributions of the functions of government.

48. The latest and best information available shows that Canada's per capita expenditures on defence are second only to the United Kingdom's among the countries of the British Commonwealth, and in the North Atlantic powers only come after the United States, the United Kingdom and the Netherlands, all of which have extensive overseas or colonial commitments.

49. Canadian active and reserve forces are considerably larger in proportion to population than those in Australia, New Zealand or South Africa. Again in proportion to population the present strength of our Navy Reserve Divisions, Reserve Army units and Air Force Auxiliary squadrons are larger than the corresponding forces in Britain.



### Money Requirements

50. If it is suggested that more should be done by way of defence in any service or arm or area, then it only can be done by doing less in some other direction or by taking an additional sum from the pockets of the taxpayers. There is no other way. The defence dollar is not a rubber dollar.

51. Canada was able to put her defences on a post-war basis more rapidly than most other countries. By the end of the year 1946-47 plans for the post-war organization were well advanced. The amount of the cash appropriation for the year 1947-48 was \$244 millions; \$196 millions was spent. For 1948-49 the appropriation was \$275 millions and expenditure was \$269 millions. For this year, the appropriation is \$375 millions with a supplementary of nearly \$8 millions, and expenditures to date show that the amount now sought plus the supplementary already tabled will be fully expended.

52. A statement follows showing the composition of the votes for defence, divided as between cash and commitment authority:

#### 1. Ordinary expenditure

(a) To be voted (Votes 239-249) .....	\$ 9,363,834	
(b) Authorized by statute .....	5,014,000	
		<hr/>
		\$ 14,378,334

#### 2. Demobilization and Reconversion

(a) Navy, Army, Air Force (Vote 250) ..	\$ 339,442,006	
(b) Defence Research (Vote 251) .....	21,179,660	
		<hr/>
		360,621,666

Total cash requirement 1949-50 .....		<hr/>	\$ 375,000,000
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#### 3. Current Year's Commitment Authority

(a) Navy, Army, Air Force (Vote 250) ..	\$ 62,500,000	
(b) Defence Research (Vote 251) .....	500,000	
		<hr/>
		63,000,000

Total Cash and Current Commitment Authority 1949-50 .....		<hr/>	\$ 438,000,000
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#### 4. Future Year's Commitment Authority

(a) Navy, Army, Air Force (Vote 250) ..	\$ 145,555,382	
(b) Defence Research (Vote 251) .....	2,760,000	
		<hr/>
		\$ 148,315,382

#### 5. Supplementary Estimates Tabled September 28 .....

		<hr/>	\$ 7,918,592
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The following statement shows how these provisions are divided as between the various services.

## DEFENCE PROGRAMME

1949-50

(millions of dollars)

## MAIN ESTIMATES

	Cash	Current Commit- ment	Total Current Authority	Future Years Commit- ment
Navy .....	\$ 70	\$ 13	\$ 83	\$ 57
Army .....	124	23	147	22
Air Force .....	143	26	169	66
Defence Research .....	21	1	22	3
Other .....	17	..	17	..
<b>TOTAL .....</b>	<b>\$375</b>	<b>\$ 63</b>	<b>\$438</b>	<b>\$148</b>

## SUPPLEMENTARY ESTIMATES

	Cash	Current Commit- ment	Total Current Authority	Future Years Commit- ment
Navy .....	\$ ..	\$ 2	\$ 2	\$ ..
Army .....	..	..	..	..
Air Force .....	5	..	5	8
Defence Research .....	3	..	3	..
Other .....	..	..	..	..
<b>TOTAL .....</b>	<b>\$ 8</b>	<b>\$ 2</b>	<b>\$ 10</b>	<b>\$ 8</b>

*Commitment Authority*

53. Experience has shown that orders for equipment and other services for the armed forces often cannot be completed in the same year in which the contracts are placed. At the same time it is not possible to say just which of such contracts will be completed in the fiscal year. Authority is therefore requested in the estimates put forward by the Department to provide for the anticipated programme but at the same time to limit the appropriation to the cash expenditures which it is expected will be made against these contracts. Future years commitment authority is requested to cover contracts for equipment and services which it is known will not be received in whole or in part until after the current fiscal year.

*Dividing the Defence Dollar\**

54. There are few problems of public administration more difficult than that of allocating between the different services the money appropriated for defence. A chief of staff engaged in planning for one of the defence forces of Canada for the next few years is faced with the task of producing a plan on a comparable basis with those of the other services so that a single coherent programme will be produced. After consideration by the Chiefs of Staff Committee, the programme is submitted to the Minister and considered in great detail. It is then discussed by the Cabinet Defence Committee and is subject to further criticism at

\* See Appendix I.

various levels on numerous occasions before being put before the Cabinet for approval and submission to Parliament in the estimates tabled by the Minister of Finance. That procedure is going on all the year round.

55. Each man taken on strength, each aircraft planned, each ship laid down, each scientist receiving support, adds to the money required for a given year, but what is more important, each such expenditure almost invariably involves commitments for years ahead, commitments that cannot be avoided and which can only be met by recurring annual expenditure.

56. This emphasizes the paramount importance of having a consistent policy. That policy must be translated into a programme which is the basis for the estimates applicable to the next year's operations.

57. Suggestions are sometimes made that Canada is spreading her defence expenditures over too many different objects—Navy, Air Force, Army, Naval Aviation, research, development—and so on. On the other hand, suggestions are made that we should extend our activities, for example, go in for submarines. How much should be spent on what is a matter of opinion. There is no final answer. What is right today may be wrong tomorrow. What we have done is to look at what is happening in the world, get the best possible advice, consider developments and act accordingly. For example, there are those who say that we should spend more on the air, even to the practical exclusion of everything else. However, no recognized expert in this or any other country suggests that the foot-soldier is out of date. With his modern equipment the infantryman was again in the forefront of the fight at the end of the Second World War.

58. In Canada as in every other country, estimates for defence are built up by striking a balance between what is desirable and what is possible. We have programmes set out for every type of defence requirement running into a good many years ahead. We cannot do everything at once and the question we have to answer is which of these do we do first. In Canada, as elsewhere, the Chiefs of Staff never get as much as they want. The adequacy or inadequacy of defence expenditures depends on the appreciation of the international situation. If we knew that we were going to have a war in 1950, then we would be spending many times as much as we are, and would also be taking drastic steps to convert peacetime industry into wartime uses.

59. What we do is to make the best appreciation of the risks and dangers in so far as we can foresee them at different future periods and then plan to spend such part of the national income as the people through their representatives in Parliament are willing to appropriate for purposes of defence.

60. The following table compares the division of the defence dollar between the three services and research in 1949-50 compared with 1948-49.

*Distribution of Defence Dollar—by Services*

	1948-49	1949-50
Navy .....	19.2%	19.0%
Army .....	37.7%	33.1%
Air Force .....	32.3%	38.8%
Defence Research .....	6.0%	5.0%
Pensions, Grants, etc. ....	4.8%	4.1%



61. The following table compares the distribution of expenditures by requirements in 1948-49 and 1949-50.

*Distribution of Defence Dollar—by Requirements*

	1948-49	1949-50
Property .....	15.0%	16%
Equipment .....	12.0%	24%
Civil Salaries & Wages .....	11.0%	9%
Pay & Allowances .....	34.0%	26%
All Other Costs .....	22.0%	20%
Research .....	6.0%	5%

*Expenditures on Personnel*

62. While pay and allowances are shown at 26%, the headings "Equipment" and "All Other Costs" include items which vary directly with the size of the forces, such as food, clothing, pensions, personal transportation and medical services. These amount to over 24%, so that today at least 50% of all expenditures is related to service personnel. The average amount of such expenditures in respect of each man joining is \$2,600. Each man by whom the forces are increased adds \$2,600 to the annual expenditure for this and future years.

*High Cost of Equipment*

63. When we come to equipment, subject only to the availability of labour and materials, we can have the equipment we want, provided we are willing to pay the price for it. Here are some examples of the cost of equipment: A Packet Transport aircraft of the C.119 type would cost more than half a million dollars; a Patton tank, \$300,000; a 5.25" anti-aircraft gun, equipped and installed, \$600,000; a Mark 6 fire control radar set, \$100,000; a No. 10AA predictor, \$50,000; an early warning radar station from \$2.5 to \$3.5 millions; a new type anti-submarine vessel, \$8 millions; a long-range 4-engine bomber manufactured in quantity, \$3 millions; an airfield suitable for 4-engine planes or jets with the necessary operational accommodation facilities, \$15 to \$20 millions.

## PART V

### ORGANIZATION\*

#### *Emphasis*

64. In planning the postwar defence forces, emphasis has been placed on what we regard as having first priority:—

Organization;

Trained officers, non-commissioned officers and tradesmen;

Equipment following research, development and industrial organization.

#### *Organization*

65. In unification and co-ordination Canada has been making continued progress and our place in the forefront of this field has been shown by the way in which steps taken first in Canada have subsequently been taken in other countries.

#### *Cabinet Control*

66. Through the cabinet system as operated in Canada all government departments and agencies report through a cabinet minister and matters requiring co-ordination or co-operation are regularly dealt with at the Cabinet meetings which are held practically every day during the session and one or more times a week when Parliament is not in session. Dealing with defence is the Cabinet Defence Committee which effects co-ordination of the major government activities relative to defence. Chairman of the Cabinet Defence Committee is the Prime Minister, with the Minister of National Defence as vice-chairman. The other members are the Minister of Trade and Commerce (who has to do with all matters relative to procurement and civil research, trading relations with other countries and many questions of internal development), the Minister of Finance and the Secretary of State for External Affairs.

67. Attending the Cabinet Defence Committee are the Chiefs of Staff (including the chairman of the Defence Research Board who has the status of a Chief of Staff), the Deputy Minister of National Defence, the Under-Secretary of State for External Affairs, the Deputy Minister of Finance or his representative, the Associate Deputy Minister of Trade and Commerce having to do with military defence procurement matters and the Secretary to the Cabinet.

68. Other defence activities having interdepartmental ramifications are cleared where necessary through representative committees, or more frequently by direct association of officials from the different departments. Co-operative activities of this kind include defence research, defence procurement and inspection, civil defence, intelligence, overall defence planning.

#### *The Minister of National Defence*

69. The Minister of National Defence is charged, under the Department of National Defence Act, with responsibility for all matters relating

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\* See Appendix II.

o defence. Under his authority officers commissioned by the King exercise military command.

70. Many advantages are achieved by placing all the services, including defence research, under one minister. Strategic needs dictate the necessity for a unified, long-range defence program. Implementation of such a program requires a single budget in which conflicts of interests can be resolved, and funds allocated on the basis of the country's needs.

71. This makes economy possible by eliminating duplicatory or even competing functions among the services. Policies as to personnel can be brought into line in the three services, so that disparities in pay and other regulations are done away with. Proper emphasis can be laid on research when it is related directly to the three services unified under one minister. In the same way co-ordination with other departments and with industry is made more direct and effective.

72. The test of Canada's system of organizing defence lies in the fact that unification has proceeded farther and duplication of function has been more thoroughly eliminated than in any other western country.

#### *Chiefs of Staff*

73. The Chiefs of Staff Committee, composed of the Chief of Staff of each of the armed services and the chairman of the Defence Research Board, formulates plans and examines organizational and training policies. This Committee, with the Deputy Minister of National Defence attending, meets regularly to discuss matters of joint interest and major importance. The Under Secretary of State for External Affairs and the Secretary to the Cabinet attend when matters of more general interest are to be considered.

74. Each year the Chiefs of Staff Committee presents to the Minister and the Cabinet Defence Committee a joint appreciation, plan and implementation program of what should be done in the next fiscal year. Co-ordinated with Government policy, such planning takes account both of immediate and long-range possibilities, and is constantly subject to change in accordance with changing conditions.

#### *Personnel Members Committee*

75. The Personnel Members Committee corresponds to the Chiefs of Staff Committee, dealing in a similar way with personnel policy, medical services, pay, pensions and similar matters. It consists of the Chief of Naval Personnel, the Adjutant General of the Army, the Air Member for Personnel, a representative of the Defence Research Board and a representative of the civil side of the Department.

76. The aim of this committee is to achieve uniformity among the forces in the regulations and conditions of their service, insofar as this can be brought about without affecting efficiency.

#### *Principal Supply Officers' Committee*

77. Dealing with matters of supply and equipment, the Principal Supply Officers' Committee fills out the list of top-level joint service committees. It is concerned with eliminating duplication and bringing about uniformity in equipment and methods of supply among the services,



78. The chairmanship of this committee and that of the Personnel Members Committee rotates among the services.

### *Administration and Command Organization*

79. In the Department, at National Defence Headquarters and in the various commands throughout the country, we have an organization well designed to meet the needs of Canada in peace and to provide the basis for effective action in war. The administrative, planning and training officers are of high calibre and we could enter a period of emergency with a minimum of dislocation.

80. The Department would like to see a considerable increase in delegation of authority. Statutory requirements and governmental practices require many matters to be done by the Governor in Council and by the Minister which might be dealt with by subordinate officers. Within the department we are doing what we can to improve the machinery of organization, particularly in the relationships between civilian and service personnel. Consideration is being given to the possibility of securing the further delegation of responsibility and greater decentralization of authority.

### *Unification*

81. The organization of the Department is constantly under review to determine where unification can be effective and where it can not. In certain fields it has been found advisable to leave certain functions to each service in order that a wartime need for expansion would find ready a larger organizational basis.

### *National Defence Bill*

82. An important step in unification is the drafting of a single bill to deal with all matters relative to defence and to provide a common disciplinary code for all three services. This bill is the result of two year's work in the Department and services. Its enactment would mean that Canadian defence matters would be dealt with for the first time entirely by the Canadian Parliament and dealt with in a single comprehensive statute applicable equally to all three services.

### *Intelligence*

83. The basis of political and military action is intelligence. Total war and modern weapons make intelligence more important than ever before. In Canada intelligence is coordinated for purposes of defence by the Joint Intelligence Committee consisting of the Directors of Intelligence of the three services, a representative of the Defence Research Board, and the Director of the Joint Intelligence Bureau working together under the chairmanship of a representative of the Department of External Affairs. Handling intelligence is as much a matter of ensuring effective distribution in consequence of appreciation and selection as it is of securing information. To this end security measures have been completely re-examined and precautions have been strengthened as considered necessary.

## PART VI

### PERSONNEL AND TRAINING

#### *Conditions of Service*

84. In planning the post-war organization of the armed forces it was felt that officers and men in order to have the qualifications to do their jobs should have conditions of service—pay, allowances, pensions, food, clothing, quarters, equipment and recreational amenities—as good as their opposite numbers in civilian life. Accordingly, new pay scales were established in 1946, putting all three services on an identical basis, and two increases have since been made. The armed forces of Canada should offer to young men a career as rich in material rewards as they will find elsewhere, at the same time as a great opportunity for national service.

85. The past two and a half years have seen great changes in quality, variety and scale of issue of clothing. Few people in civilian life today have as much clothing of such good quality as have the members of our armed forces.

86. This year we introduced a new ration which is as good as any known. No one anywhere has better or more varied food. Steady improvement is being made in the recruiting and training of cooks.

87. During this period we have pressed forward with construction of married quarters. At the end of 1946 we had about 1,100 married quarters for the three services. With the completion of the married quarters programme for the present year we shall have 7,304. In proportion to numbers the increase in married quarters is greater than in other countries. In this way we have helped to relieve the civilian housing problem at the same time as we have provided service personnel with the conditions for a good family life.

88. At sixteen places like Borden, Barriefield and Shilo, where there are no schools, we provide schools for children of service personnel, with over 2,000 children now in attendance.

89. We are adding to single men's barrack accommodation with new construction for the navy at Halifax; for the army at the Quebec Citadel, Petawawa, Borden and Chilliwack; for the Air Force at Bagotville, Toronto, Namao and Whitehorse as well as a new dormitory at R.M.C. Further new buildings are planned for next year. In all three services we have been doing substantial repairs and alterations to extend the life of wartime buildings.

#### *Recruiting for Active Forces*

90. How has this affected recruiting? We are in a period of full employment with the highest wages in the country's history. It is also a period when people might be expected to be weary of wars and defence. Despite these factors we have been, for the most part, getting recruits at the rate we want.

91. In 1946 it was announced that the post-war establishment of the three armed services would be 51,100 officers and men. The Navy was fixed at 10,000, the Army at 25,000 and the Air Force at 16,100. In preparing the estimates at the beginning of 1947, the target was set at 75 per cent of these figures—a total of 38,325. At that time the strength of the forces was 32,610, which included a number of officers and men enlisted for the duration only. By September 30, 1947, all the forces had been put on a permanent basis.

92. Today the establishments for the three services, total 50,359 or about the same as the 100 per cent figure announced in 1946. These establishments are changed from time to time to meet changing needs.

93. As at September 30, 1949, the total strength of the three services was 45,159, representing 89 per cent of the present establishment and well over the target set at the beginning of 1947.

94. The strength of the R.C.N. active force is 8,872 as compared with its present ceiling of 9,047. Even to maintain the Navy strength at the present level would require that recruiting be continued to take care of normal wastage from retirements and discharges.

95. The Canadian Army, active force, with the present establishment of 23,034, has a total strength of 19,931. At the present rate of net increase, it is expected that the Army will reach its establishment by September, 1950.

96. The Air Force has a strength of 16,356 on account of its establishment of 18,278, which it is expected to reach in December, 1950.

97. The strengths of the reserve forces are 3,468 for the Navy, 38,572 for the Army and 3,086 for the Air Force, making a total of 45,126. There are in addition 936 in the U.N.T.D., 2,619 in the C.O.T.C. University contingents and 679 in the University Air Training Plan, as well as 282 at the Canadian Service Colleges.

98. During the twelve months ending September 30, 1949, we took in a total of 12,267 officers and men and released 4,006 by retirements, discharges, etc., leaving a net increase of 8,261. The average net increase was 688 per month. During the same period, we have had 54,814 approaches, of which rather more than half underwent medical examination.

99. In round figures, today we employ 24,000 civilians, 45,000 in the active forces and 45,000 in the reserves, making the total full-time and part-time personnel engaged on defence 114,000.

100. In addition, there is still and will be available for some time yet a proportion of the million men and women who returned to civilian life after their experience in the Second World War.

101. Wastage in the active force is much less than anticipated. Among army personnel now completing their first engagement of three years, 97 per cent are re-engaging (the 3 per cent includes a small number of men released as unsuitable), an exceedingly favourable figure, particularly as most of the men re-engaging joined up at the end of the



war without the means of knowing whether or not they would like a peacetime service career. The rate of re-engagement is a healthy sign that the services are providing men with the kind of career they want.

102. The flow of recruits into the active force and the capacity of the various schools in the services are geared together. Increasing the flow of recruits would necessitate a considerable increase in capital equipment, a large part of which would no longer be required when the services were built up to strength.

103. The present standard of education required of recruits is generally 8th grade or above and standards will become higher as positions requiring lower qualifications become filled. To reduce standards would not be profitable as it would mean a larger expenditure of men, time and money in in-service training. Reducing standards would mean more delay in posting qualified men as well as greater expense.

### *Skilled Tradesmen*

104. In the Second World War the Canadian forces had one motor vehicle for every four men and one wireless set for every twelve. All three services use equipment like radar, predictors and other complicated electrical and mechanical devices to a degree that is not commonly recognized. Of the officers and other ranks, no less than 74 per cent require special technical qualifications recognized as such in their service.

105. Greatest bottleneck in meeting a future emergency would not be in raw materials or tools or industrial know-how, still less would it be in trained sailors, soldiers or airmen, it would be in trained tradesmen. Steps are being taken to increase their numbers.

### *Career Opportunities*

106. At present there are 98 men from the ranks attending the Service Colleges and universities. Numbers of men are from day to day improving their trade qualifications. We must do more in the way of in-service training so as to increase the opportunities readily available in the service career.

107. Altogether we want to secure for our armed services men of good character and physique who, in addition to all the qualities of the good citizen, have the qualities of leadership and the professional attainments that are needed alike by officer and other personnel. This means high entrance qualifications, continuous in-service education and training, good conditions of service, the opportunity for advancement, a continuing useful career and a respected place in the community.

### *Training Schools Generally*

108. Within the armed services there is a complex system of educational and training establishments. The Navy maintains specialist schools to qualify men in torpedo, anti-submarine, communications, gunnery, navigation and many other subjects. Each Naval Reserve Division is responsible for training reserve personnel in one of these specialist branches, permitting by means of this division of labour a much higher level of reserve training, with greater economy. In the Army, located

at nine different camps there are schools for each of the fourteen Corps—infantry, armour, engineers, etc. The Air Force has eight schools at six stations. There is close co-operation in training and in exchanges of staff and students with corresponding military schools in the United Kingdom and the U.S.A.

109. Language training is increasingly emphasized, especially the study of French.

110. A number of schools are of an inter-service nature, such as the joint air-training centre at Rivers, where all aspects of navy-army-air co-operation are studied, or the winter warfare school at Churchill, where all three services and the Defence Research Board study techniques of living and fighting in the northern winter.

### *Officer Training*

111. The emphasis on officer training has been fully justified. The new officer training plans in the universities and at the Canadian Service Colleges, with changes planned, particularly for executive officers in the Navy, are organized, staffed and equipped to produce officers of a superior type, well qualified for leadership by character, professional standards and general education. There are in training today candidates for commissions in the three services totalling over 5,000, a number training to such standards believed to be greater in proportion to population than in any country.

112. R.M.C. was reopened and Royal Roads set up as Canadian Service Colleges for cadets for the Navy, Army and Air Force. Cadets have the same courses at both places for all three services. These courses are generally equivalent year by year to those in the universities. In this way we bring the men in the services closer together at the start of their careers. In the summer the cadets train for three or four months, receiving \$153 a month all found, thereby helping to earn their way. Seventy one scholarships are provided by the government and various organizations, over fifteen being offered through the activities of the Air Cadet League of Canada.

### *Other Training*

113. During the last two years we have opened the National Defence College for senior officers and civilian officials, and the Staff College and Air Staff College for staff training.

### *Naval Reserve*

114. The twenty-one Naval Reserve Divisions across Canada are in active operation as training centres for the reserve and as recruiting centres for the active force. The great majority of these have suitable accommodation, training facilities and equipment. In addition to training with the local division, officers and men get training at sea or on the Great Lakes for periods which vary from two weeks up. In most of the divisions instruction is given in radar, and wireless communication is maintained with the ships and establishments of the active force and reserve divisions.

### *Naval Discipline*

115. Following incidents on several R.C.N. ships, the Minister appointed Rear Admiral E. R. Mainguy, O.B.E., (Chairman), Mr. L. W. Brockington, C.M.G., K.C., LL.D., and Mr. L. C. Audette to report on these incidents and their causes. The report contains many constructive recommendations, some of which, as the report itself indicates, were already covered before the report was made. The Navy is proceeding to carry out others immediately and will deal with others as part of a longer term programme. Implementation of still further recommendations depends on Treasury action or government policy and a number of recommendations are still receiving consideration.

### *Army Reserve*

116. Army Reserve units have made good progress with their organization on a post-war basis. The great majority of officers and N.C.Os. satisfy the requirements for active service. Administrative and training officers and N.C.Os. are attached to every unit. Adjustments have been made in unit allowances. Maintenance of equipment is carried out on a better basis than heretofore. Reserve personnel have the same rates of pay as active force personnel. New scales of issue for clothing have been provided for. Armoury accommodation has been increased by 70% since 1939. Training facilities at summer camps have been improved and extended. We shall do everything possible to strengthen the reserve units in this work of national importance.

### *Air Force Auxiliary*

117. Ten squadrons have been established in the Air Force Auxiliary, of which six are equipped with jets. New types of Air Force reserve units will be set up to deal with branches of Air Force activities other than flying and also to provide for flying lighter aircraft in places where facilities for flying service type aircraft are not available. A radar reserve unit has been successfully established at Montreal, is in active operation, and will be followed by others as soon as possible.

### *Cadets*

118. Approximately 69,000 Sea, Army and Air cadets, falling generally in the age groups between fourteen and eighteen, are receiving unprecedented support from the Department, the services and public-spirited schools and organizations, particularly the Navy League of Canada and the Air Cadet League of Canada. Increased expenditures have made possible more effective training facilities resulting in an intensified interest on the part both of cadets and instructors. Summer camps give to the cadets an opportunity for practical work of real value. In the summer of 1949, 3,357 air cadets and 161 air cadet officers attended summer camps, each cadet receiving two hours of familiarization flying, as well as instruction on aero engines, radio, theory of flight and other subjects. Flying training scholarships, consisting of 60 hours ground and 17 hours flying, were awarded to 224 air cadets by the R.C.A.F. at Royal Canadian Flying Clubs.

119. Cadet training makes better citizens and supports the armed forces. About 30% of recent enlistments in the Royal Canadian Navy and 40% in the Naval Reserve are former Sea Cadets.



*Civilian Employees*

120. We have deliberately tried to have civilians fill all jobs that they could do in wartime. They do not require special training as soldiers and consequently cost less. It is desirable to limit serving personnel to men who are qualified to do a job in active service. We have 4,156 (2,642 prevailing rate and 1,514 civil servants) in the dockyards at Halifax and Esquimalt where we had 540 in 1939. We have a total of 11,227 men employed as prevailing rate employees in shops or on construction work directly employed by the Department. We have 8,976 permanent or temporary civil servants (excluding those employed in the dockyards) or others who are commonly recognized as falling under that name, making a total of 24,359. Taking this with the total strength of the active forces of about 45,000, makes the total full-time personnel in the Department 69,000.

121. In 1939 the total strength of the active forces was 9,209 with 1,569 civilians. The United States is understood to have about 900,000 civilians and 1,600,000 full-time soldiers, sailors and airmen.

## PART VII

### EQUIPMENT

#### *Supply and Equipment*

122. The purchasing agent for the Department of National Defence and for the three services is the Canadian Commercial Corporation, a Crown company established by Act of Parliament and administered under the Minister of Trade and Commerce. Equipment and supplies are procured and contracts for construction are placed through the Corporation. Local officers have limited authority to approve requisitions for minor or urgent needs on local purchasing offices of the Corporation.

123. Inter-service committees ensure co-ordination in procurement, and for the first time the three services are adopting common standards and scales of issue. Standardization must begin at home.

#### *Inspection*

124. All equipment, before being accepted from the contractors, must be inspected to ensure that specifications are met. This essential function is performed by the Inspection Services which have taken over the equipment, records and key personnel of the wartime Inspection Board.

125. Under the direction of a controller general, vested with the authority of an associate deputy minister, the Inspection Services are administered by officers of the three armed forces and civil servants.

#### *Equipment*

126. In the year 1948-49, the Department of National Defence spent on equipment, construction, repairs, maintenance, supplies and other similar items, a total of \$145,033,051. Most of this was dealt with in 65,308 contracts placed through the Canadian Commercial Corporation.

#### *Aircraft*

127. Contracts have been arranged with Canadair Limited for the purchase of 100 F86A's at a cost of \$30,211,190, which does not include the cost of engines, armament and radios. The work has already begun on the construction of this aircraft.

128. Canada is also pressing forward with the development of the Canadian aircraft, the XC100, a twin-seater all-weather fighter, particularly designed for use in Canada. The aircraft is about to be tested. The Orenda engine, also completely designed in Canada, has not yet been flown but bench tests have been highly satisfactory. Last year and this we put two years' development work into one. The engine is shortly to be installed for test in the F86A.

129. It will not be known if the XC100 with the Orenda engine will be a success until it has been test-flown extensively. So that there may

be no delay, we have this year placed a development contract for tooling up for production and for the purchase of 10 pre-production XC100's and spares.

130. A. V. Roe Canada, Limited, with assistance from the Department of Trade and Commerce, is also proceeding with the development of a four-engine jet transport, a project of interest in connection with defence. The Canadian aircraft industry is also producing North Stars, Beavers and Chipmunks. It is believed that no country outside the United States, the United Kingdom and the Soviet Union is doing more in the design, development and production of modern aircraft.

131. At the same time we are proceeding with a planned programme of conversion and modification of existing planes. Altogether we have already placed orders this year for aircraft, aircraft overhaul, repairs and parts to the sum of \$45,549,483, apart from the contract of \$30,000,000 for the F86A's on which payments are just commencing. Last year we spent a total of \$22,038,554 in the aircraft field.

#### *Naval Ships*

132. The Royal Canadian Navy now has under way the largest shipbuilding programme to be engaged on in peacetime in Canada, with contracts let totalling nearly \$40,000,000. The programme includes a new transport icebreaker specially designed for use in the Arctic. We have also arranged for the construction in Canada of three anti-submarine escort vessels, four minesweepers and one gate vessel. The escort vessels will cost approximately \$8,000,000 each to build. These escort vessels are of a new and largely Canadian design and represent a development in which the Royal Canadian Navy and the Canadian ship-building industry have worked together to produce a practical warship made to Canadian industrial standards and practices. These ships are the first new vessels to be contracted for anywhere to meet the requirements of modern anti-submarine warfare. They are designed to use aluminum in the super-structure and bridges and steel in the hull. The minesweepers are of fundamentally British design and likewise will be the first of their class to be built. The gate vessel, another first, is designed so that it can be adopted eventually for commercial use in the Canadian fishing industry.

133. In addition, the policy of the Department is to rotate the ships in reserve with those in commission as part of a continuous programme to bring existing ships up to date in their armament, electronic and wireless equipment as well as their accommodation.

#### *Motor Vehicles*

134. An effort is being made to achieve standardization in the types and spare parts of motor vehicles for the purposes of simpler servicing and greater interchangeability.

135. New types of vehicles have been developed for transportation in the north. Teams of sleds and heated caboose-like huts mounted on sleds, towed by caterpillar tractors, have helped to solve the problem of transporting men and equipment in areas of extreme cold. An improved anti-freeze has also been developed and tested.



### *Electronic and Wireless Equipment*

136. Development of the defence signal services with a tape-relay system for fixed military communications, along with advanced radar and electronic navigational aids for ships and aircraft, has called for a great amount of electrical equipment during the last year. It has been decided to produce new high-powered radar equipment in Canada, thereby giving Canadian electronic manufacturers experience and capacity invaluable in the event of an emergency.

137. Last year we spent \$13,956,679 on communications and electrical equipment. Up till the end of August, we had spent \$8,448,402, over half of last year's total in five months. This is part of a programme involving all three services in the planned development and extension of existing equipment and facilities.

### *Construction*

138. Practically every permanent and temporary building in condition to house married or single active force personnel is full to capacity.

139. In 1948-49 we let contracts for 2,160 married quarters and in addition there were 273 housing units under construction at the end of the year. This year our housing programme includes the expenditure by this Department of nearly \$17,000,000 on married quarters with a considerably larger sum to be expended through Central Mortgage and Housing Corporation on houses earmarked for service personnel. Over \$90,000,000 was allocated for all construction for defence purposes this year, which may be compared with the total expenditure on defence construction of \$219,000,000 in 1942, the peak figure during the war. In addition to married quarters, this includes the single men's barracks referred to above, and the construction or repair of many other buildings.

140. Although we have added 70% to reserve army accommodation during the last ten years, there is still a great shortage, and a beginning in meeting this was made with a contract for a new armoury at Sault Ste. Marie.

141. For a good many years to come, expenditures on construction will constitute a major item in the defence programme. We have to accommodate seven or eight times the numbers we had before the war, and have much larger requirements for operational units, stores, hangars, training establishments—indeed every type of construction in every part of the country.

### *Communications\**

142. Defence communications within Canada and connecting Canada with other countries were greatly expanded during the Second World War. Communications become of increasing importance as the possibility of direct attack increases. Radar screens and other sources of intelligence are of little use unless the information obtained is communicated promptly to an operational unit which can take effective action. The Battle of

\*See Appendix III.

Britain was won through the partnership of radar and fighter planes assisted by wireless and wire line communications. It has been stated that Britain required for military use as extensive a system of wire lines as was required for all civil purposes. In Canada we have set up a network of wire and wireless connections worked in co-operation by the Navy, Army and Air Force. This network, furnished with modern radio teletype equipment extends throughout Canada and connects Canada with other countries. Steps are being taken to supplement existing wire line services where that is possible and desirable.

## PART VIII

### OTHER ACTIVITIES

#### *Defence Research*

143. Defence Research has been put on a footing with the other services, aiming at the closest possible co-operation. There is also close integration of our programme with other countries. In addition to other developments, attention is being paid to various aspects of anti-submarine warfare and flying problems, particularly related to conditions we would have to meet.

144. During the past three years, Canada has evolved a unique organization for Defence Research. This organization is headed by the Defence Research Board, which is responsible to the Minister of National Defence. Under the Board is a Defence Research organization which has been planned to meet the research needs of all three services. The primary task of Defence Research is to make available to the Armed Forces all the scientific resources of Canada and of other friendly countries. In carrying out this task, Defence Research maintains close liaison with the United Kingdom and the United States; operates research establishments dealing with subjects of purely defence interest, and makes arrangements for service research problems to be dealt with by the National Research Council, the Bureau of Mines, the Department of Agriculture and other Government Research Agencies, and also, where appropriate, by university research laboratories.

145. It is difficult to assess accurately the success of experiment in research organization, since its results appear mainly in reports which are necessarily secret and as improvements in the weapons and techniques of the Armed Forces. However, all the indications are that the experiment is succeeding.

146. Defence Research has made the same sort of material progress that has been described for the Armed Forces. It has shared with them the problems of recruiting, of housing in outlying districts and of the provision of suitable laboratory facilities. Satisfactory progress has been made in meeting all three problems. The work of the Defence Research Board in Canada has already achieved such a standing that it attracts a steady flow of young scientists to the staff of the Defence Research Board and has become so well recognized internationally, that it is regarded as a substantial addition to Canada's contribution to the defence of freedom. The Atomic Energy Project at Chalk River, though it is operated by the National Research Council and is not officially a part of Canada's defence organization, should also be regarded as an important link in Canada's organization of research for defence.

#### *Defence Health Advisory Board*

147. The Defence Medical and Dental Services Advisory Board representing the armed services, other government departments and the



interested professional associations, has been set up to co-ordinate the work and to advise on health matters.

### *Industrial Organization*

148. During the year the Industrial Defence Board was as planned transferred to the Department of Trade and Commerce. To co-ordinate and direct activities relative to industrial planning and procurement for defence purposes, Mr. S. D. Pierce, O.B.E., formerly Canadian Ambassador to Mexico and during the war in charge of the operations of the Department of Munitions and Supply in Washington, was appointed Associate Deputy Minister of Trade and Commerce. Mr. Pierce and Mr. H. R. Carmichael, CMG., Chairman of the Industrial Defence Board, were named as the Canadian members of the Joint U.S.-Canada Industrial Mobilization Planning Committee, to plan industrial co-operation with the United States. Close co-operation is maintained with the Canadian Industrial Preparedness Association.

149. As compared with 1939, Canada today can produce virtually every kind of military equipment. Not only have we got the skills—the “know-how”—but also plant capacity and equipment. Canadian Arsenals Limited is now maintaining seven government-owned arsenals. The potential capacity of Canadian industry to produce war equipment is twice what it was in 1939.

150. In the case of major articles of equipment, the Canadian market is not sufficiently large to permit an economic run. Enquiries for aircraft, ships and other types of equipment have indicated large markets abroad, which recognize the capacity of Canadian industry to produce equipment of the latest type economically and efficiently, but the other countries' shortages of dollars prevent many orders being placed.

151. It is in the interest of North Atlantic security and the defence of North America that the industrial potentials of Canada and the United States should be integrated as under the Hyde Park Declaration of April 1941. We would pay for equipment purchased from the United States with the proceeds of the sale of equipment made in Canada either for delivery to European countries in consequence of purchases made under the Mutual Defence Assistance Act or to the United States for the use of its own forces.

152. To this end, discussions have been in progress for some time, but it is still too early to say what the result will be. In the meantime we do not feel justified in adding to the adverse balance of dollar exchange resulting from Canada buying from the United States more than the United States buys from us, except in so far as these purchases are necessary to meet essential requirements. Conversations on this subject with the administration and military authorities of the United States have been cordial and understanding. The “Buy American” Act stands on the statute books of the United States to block purchases in Canada of equipment for use by U.S. forces.

### *Standardization*

153. Progress has continued with regard to standardization through numerous service committees. We have a greater interest than possibly

ny country in ensuring that equipment designs are standardized so as to permit manufacture according to North American practices. Obstacles to standardization are not due to any lack of desire on the part of any of the countries concerned, but are due in part to uncertainty as to the characteristics of some of the weapons we should all adopt as standard; and in part to the stocks of useful equipment (such as rifles, machine guns and the like) which it would cost hundreds of millions of dollars to replace. Within Canada we have taken the lead in standardizing clothing, rations and personal equipment for men of the three services. The most fertile field for standardization appears to be motor vehicles, so as to reduce the number of different types and sets of spare parts, as well as further to integrate the productive capacities of the United States and Canada.

### *Strategic Materials*

154. As the largest exporter of base metals in the world, Canada produces a surplus of many strategic materials which in other countries are in short supply. We are continuing arrangements for stockpiling tin and natural rubber.

### *Co-operation with the United Kingdom and the United States*

155. Co-operation between the services of Canada with those of both the United Kingdom and the United States has been closer than ever before. Close working relations have been maintained through the friendly associations of ministers as well as chiefs of staff and other ranking officers of all three services and defence research. There has also been considerable interchange of information and personnel for training. The co-operation so well established between these and other nations should prove a sound foundation on which to build the organization of the North Atlantic powers into a strong security system.

### *Newfoundland*

156. As from the beginning of the current fiscal year, the natural map of Canada was completed by the union of Newfoundland with Canada. Situated in the Gulf of St. Lawrence, the island of Newfoundland commands the eastern approaches to our country, and Labrador is our north-eastern land frontier. During the Second World War we had major bases for escort and convoy in Newfoundland and Labrador. Immediately after the union, officers of the Canadian Navy, Army and Air Force were appointed for Newfoundland. The organization of a Naval Reserve Division at St. John's to be called H.M.C.S. "Cabot" has been commenced. The Newfoundland Regiment (to be known as the Royal Newfoundland Regiment) and the 166th Artillery Regiment have been authorized to perpetuate their fine records in the First and Second World Wars.

157. Negotiations have been entered upon to secure modification of certain of the U.S. rights at the bases leased by the United Kingdom. We have also commenced negotiations to acquire the Admiralty properties in St. John's.

### *The Armed Forces and the Community*

158. Since the Second World War no time was lost in organizing the forces of Canada on a post-war basis and in putting before the people of

Canada the need for these forces. Campaigns using the various advertising media and ministers and others in visits to numerous centres across Canada emphasized the essential unity between service personnel and the civilian community. Special demonstrations were given on Navy Day, Air Force Day, Army Week and on other occasions. Wherever it was possible the armed forces have given assistance to civilian communities, for example, in the case of the Fraser Valley floods. A notable demonstration took place at the Canadian National Exhibition when the Armed Forces' display was seen with appreciation by over a million people, and in the nightly showing at the grandstand the Tri-Service Precision Squad was one of the most popular features. The ceremony at Trenton at the presentation to the R.C.A.F. of gates commemorating the British Commonwealth Air Training Plan was a memorable occasion. Demonstrations of training and equipment have been given by the Navy on the east and west coasts and by the Army at the various training camps across the country.

159. We have aimed to break down the old division between civilians and soldiers, believing as Henry Stimson said, "The closer a civilian comes to the Army, the more likely he is to give it his broad approval."

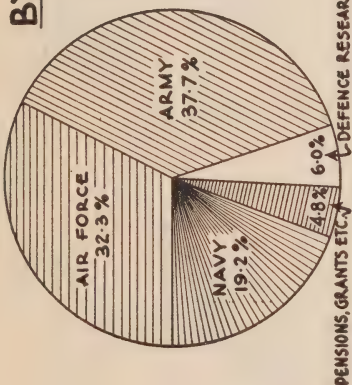
160. It is a commonplace, now more forcefully demonstrated than ever before, that we cannot dissociate ourselves from the security of others. Security, to be real, must be undivided. The world to-day, however, is divided against itself, and we have chosen to work with the side which prefers the security of freedom rather than a temporary security maintained by coercion. It is necessary for us to join with others to establish, by free means within our free institutions, such an evidence of strength as will deter any ambitious autocracy from aggression.

161. This objective calls for things which are very much dependent on each other. It requires an informed public awake to the challenge with which these times confront us. The civilian citizen must realize the extent to which his way of life depends for its continuance on the services. The sailor, the soldier and the airman must realize that his calling is more than just a job, but is a job on which his citizenship and all free citizenship depend. The soldier does not cease to be a citizen when he puts on his uniform. He adds to his quality as citizen the ability to defend his rights and the rights of others. It is when those rights are menaced that they become most precious, and we should all guard them safe more carefully than precious metals or stones, for in comparison our human rights are infinitely more valuable and more perishable.

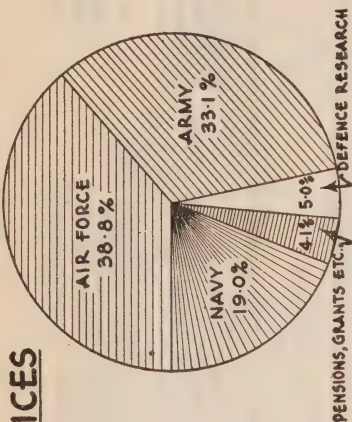


# DISTRIBUTION OF DEFENCE DOLLAR

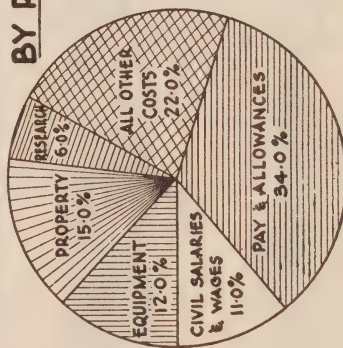
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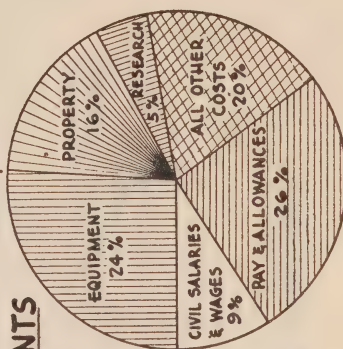
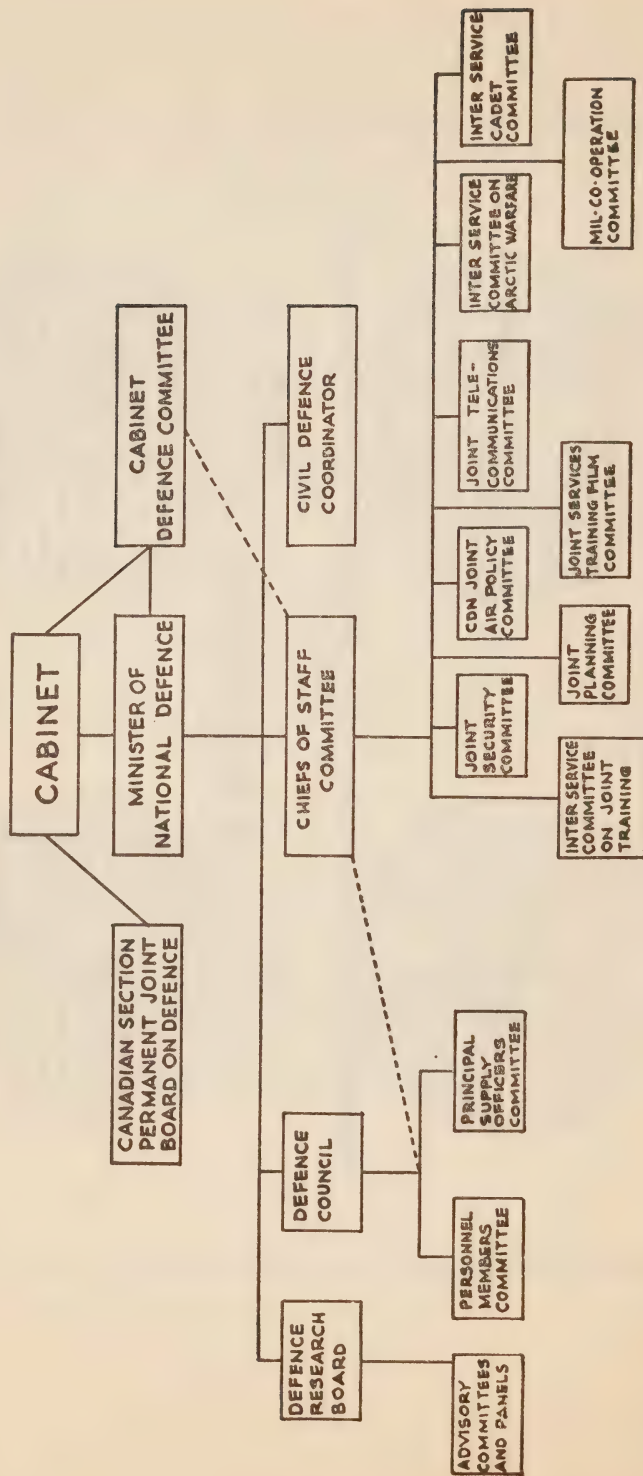


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# CANADA

## ORGANIZATION FOR DEFENCE PLANNING









Lacking 1950/51





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Government  
Publications

# CANADA'S DEFENCE PROGRAMME

1951-52

(With Revisions to June 30, 1951)

**HON. BROOKE CLAXTON**

Minister of National Defence

OTTAWA  
EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY  
1951



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## PREFACE

This paper is intended to provide basic information on the defence programme and planning. It has become more important than ever that everyone should understand the reason for our defence policy and on the basis of that understanding give it their strong support.

To this end, the fullest possible information has been given on defence activities and plans. So that this material might be available in convenient form to facilitate the discussion of the estimates in Parliament, this paper was presented to Parliament on May 7. It incorporated then much of the material given in ministerial statements on the defence programme up to that time.

The statement so presented to Parliament has been revised to bring it up to the date of June 30, 1951, when the appropriations were voted and Parliament adjourned.

Insofar as the defence effort succeeds in preventing aggression, it will by that very fact prolong the need for the effort in the future. We must be prepared to meet either the challenge of general war or the continuation of effort over a generation.

**BROOKE CLAXTON**  
Minister of National Defence.



## ERRATA

Page 31, paragraphs 171 and 172—

For \$1,994 million, read \$1,944 million.

Page 33—

For

by requirement 1920-51

Read

by requirement 1950-51

Page 33, paragraph 175—

FOR	READ
1,994,000,000	1,944,000,000
142.49	138.91
9.9%	9.7%
52.72%	51.40%

*Entered.*



## PART I

### THE INTERNATIONAL SITUATION

1. When the North Korean Communist forces committed an act of unprovoked aggression against the Republic of Korea, the free nations, without exception, re-examined their defences and their plans for future defence development. The outbreak of violence multiplied the risks of general war. In the stocktaking the free nations had to take into account a global balance sheet in which the military power of aggressors and potential aggressors was weighed against the defensive strength of the free nations.

2. If Korea increased the immediate risks of a general war, it also served to make the peoples of the free nations more aware of those risks.

3. This further threat to peace had the effect of translating long term plans into short term plans, of expanding defence programmes and speeding up timetables of action. It both demonstrated and hardened the unity of the free world, a unity which is essential to prevent the extension of communist imperialism and to preserve peace.

4. It is apparent that communist strategy has been dealt a severe blow in Korea. The united action of the free world against this outbreak of unprovoked violence has demonstrated that acts of aggression cannot be committed with impunity. The danger, however, is not yet at an end. The experience of the free nations, especially in the events of the last year, has shown that trained united strength is needed to prevent aggression.

5. Our common peril demands a common defence effort. No one country is capable of providing by itself that security which the North Atlantic countries seek. The members of the North Atlantic alliance are pledged to regard an attack upon one as an attack upon all; but this pledge alone will not secure their safety. All the North Atlantic allies face the necessity of transforming plans into operational reality, and of welding from diverse elements a common, solid front against any possible aggressor.

## PART II

### CANADA'S DEFENCE OBJECTIVES

6. The government believes that the security of Canada will best be assured by keeping the threat of aggression as far from our shores as possible. Everything done for the collective defence is done for the defence of Canada.

7. The objectives of our national defence are simple and clear. They are:

- (1) The immediate defence of Canada and North America from direct attack;
- (2) implementation of any undertakings made by Canada under the Charter of the United Nations, or under the North Atlantic Treaty or other agreement for collective security;
- (3) the organization to build up our strength in the event of a total war.

#### *The First Objective: Defence Against Direct Attack*

8. Our first objective has been what is referred to in the North Atlantic Treaty as "self-help"—the territorial defence of Canada, and, in co-operation with the United States, the defence of the North American region.

#### *Air Force*

9. To meet the possibility of air attack, the armed services are working in close co-operation with the United States. A web of stations with the latest and most powerful radar apparatus is being built, to be connected by a network of communications and backed up by squadrons of fighters. The American and Canadian systems will be linked together to form a single organization.

10. The reason that radar and fighter defences are not already fully operational is that the radar, the type of communications selected and the aircraft—the F-86E Sabre and the CF 100 Canuck—have only been recently developed and have not yet been produced in the numbers required. As fast as aircraft can be produced, regular and auxiliary fighter squadrons will be manned and equipped to war strength. In the interim, the R.C.A.F. has mobile radar sets and Vampire and Mustang fighters.

#### *Army*

11. To supplement these air defence the Army has a large number of heavy anti-aircraft guns to be manned by active and reserve force personnel.

12. In addition to attack by air, it might be possible for an enemy to land parachute or airborne troops in a surprise attack. To meet this possibility the Canadian Army has a specially trained airborne mobile striking force.

13. For much the same purpose the United States has similar and larger formations. It is noteworthy that none of these formations was moved to Korea since they were specially trained and earmarked for this particular type of continental defence.

## *Navy*

14. In continental defence the Navy is responsible for the protection of coastal sea lanes and shipping against enemy action, including mines; and for the vital task of keeping our harbours and approaches open. Ships and installations are being constructed to discharge this role. The R.C.A.F. is building up maritime squadrons for anti-submarine work.

15. Naval aviation is playing an increasing part in operations of the Royal Canadian Navy for the immediate defence of Canada. It has been demonstrated in the past that carriers and their aircraft are essential to the successful execution of naval action; especially is this so in the case of anti-submarine warfare which is expected to be a vital commitment of the Royal Canadian Navy in the event of another war.

## *Reserves*

16. Since the reserves of the three services are a most essential part of the overall defence plan, they are being expanded with respect to training, accommodation and equipment.

17. This citizen army, which until the last possible moment performs the duties of both the civilian and the soldier, helping at the same time to operate and to defend the country's economy, cannot be accorded too much praise or encouragement.

## *Civil Defence*

18. Because of the possibility of direct attack, it is necessary for us to take precautions for civil defence. Military defence has as its objective the defeat of the enemy and the defence of the country against direct attack. The object of civil defence is to reduce the consequence of enemy action upon civilian population and property.

19. Though the responsibility for civil defence was transferred on February 23, 1951, to the Department of National Health and Welfare, the armed forces will continue to be available to assist and support the civil authorities.

## *The Second Objective: The United Nations and NATO.*

### *(A) United Nations*

20. The United Nations Organizations was created for the purpose of establishing and preserving international peace and security. When in June, 1950, the United Nations considered the attack of the North Korean forces as a "breach of the peace and an act of aggression", Canada assumed her responsibility with the other nations to stop aggression and to restore peace by collective action.

## *Navy*

21. The R.C.N. sent three destroyers to Korea on July 5, 1950. They were the "Cayuga", "Sioux" and the "Athabaskan". These ships have been replaced successively by the "Nootka", "Huron" and "Sioux", the latter doing her second tour of operations. The "Cayuga" is once again on its way out and will replace the "Nootka". All ships have given an excellent account of themselves.

22. The first task assigned to the Canadian destroyers was escorting troops and supplies from Japan to Korea. Since mid-August the ships



have been employed on patrol off the west coast of Korea. During these patrols they have destroyed many mines laid by the Communist forces, carried out numerous bombardments of shore installations, given aid to small communities in need of food and supplies, and assisted in the evacuation of U. N. ground forces and civilians from battle areas.

23. Landing parties including members of the ships' companies have proceeded ashore and demolished enemy installations. During the U.N. landings at Inchon the three Canadian destroyers carried out patrol and support duties in the area.

#### *Air Force*

24. Commencing July 29, 1950, the 426 (Transport) Squadron has provided valuable assistance in the airlift to the Far East. The loads carried included general cargo, Canadian and U.S. military personnel, and mail, in both directions. On eastbound flights casualties will continue to be evacuated to North America.

25. During the Korean airlift up to June 30, 1951, the squadron had flown more than 220 Pacific crossings, carried over 5,000 passengers, over 1,500,000 lbs. of freight and other items, and, in carrying out this task, had flown approximately 15,000 hrs. Effective June 25, 1951, 426 Squadron has been repositioned at its Canadian base at Dorval, Quebec, from which it continues to operate on the Korean airlift staging through Tacoma.

26. The Government also took over and made available for the Pacific airlift the augmented passenger facilities of the Canadian Pacific Airlines between Vancouver and Tokyo.

#### *Army*

27. Recruiting for a Special Force to send to Korea began on August 9, 1950, and the objective of 10,000 men was soon realized. The 25th Canadian Infantry Brigade Group was formed under the command of Brigadier John Rockingham, D.S.O. and Bar. It includes some 1,300 officers and men of the Canadian Army Active Force.

28. After initial and advanced individual training at corps schools and with parent units the force moved to Fort Lewis in Washington to continue its training. The 2nd Battalion of the Princess Patricia's Canadian Light Infantry was sent to Korea on November 25, 1950, to complete its training.

29. That battalion went into action on February 19, 1951, when it was considered battleworthy according to the high standards established by that famous regiment's record since its first entry into battle in December 1914. Since that time the officers and men of the Princess Patricia's have not only upheld, but added to the laurels of their regiment. For their magnificently courageous action on April 24 and 25 of this year they have received a citation from the President of the United States, which reads as follows:

"3D BATTALION, ROYAL AUSTRALIAN REGIMENT

2D BATTALION PRINCESS PATRICIA'S CANADIAN LIGHT INFANTRY  
COMPANY A, 72D HEAVY TANK BATTALION (UNITED STATES)

are cited for extraordinary heroism and outstanding performance of combat duties in action against the armed enemy near Kapyong, Korea, on the 24th and 25th of April 1951. The enemy had broken through the main line of resistance and penetrated to the area north of Kapyong.



The units listed above were deployed to stem the assault. Early on the 24th of April, the 3D Battalion, Royal Australian Regiment, moved to the right flank of the sector and took up defensive positions north of the Pukhon River.

"THE 2D BATTALION, PRINCESS PATRICIA'S CANADIAN LIGHT INFANTRY defended in the vicinity of Hill 677 on the left flank. COMPANY A, 72D HEAVY TANK BATTALION, supported all units to the full extent of its capacity and in addition, kept the main roads open and assisted in evacuating the wounded.

"Troops from a retreating division passed through the sector which enabled enemy troops to infiltrate with the withdrawing forces. The enemy attacked savagely under the clangor of bugles and trumpets.

"The forward elements were completely surrounded going through the first day and into the second. Again and again the enemy threw waves of troops at the gallant defenders, and many times succeeded in penetrating the outer defense, but each time the courageous, indomitable and determined soldiers repulsed the fanatical attacks.

"Ammunition ran low and there was no time for food. Critical supplies were dropped by air to the encircled troops, but still they stood their ground in resolute defiance of the enemy.

"With serene and indefatigable persistence, the gallant soldiers held their defensive positions and took heavy tolls of the enemy. In some instances when the enemy penetrated the defenses, the commanders directed friendly artillery fire on their own positions in repelling the thrusts.

"Toward the close of the second day, the 25th of April, the enemy break-through had been stopped. The seriousness of the break-through on the central front had been changed from defeat to victory by the gallant stand of these heroic and courageous soldiers.

"THE 3D BATTALION, ROYAL AUSTRALIAN REGIMENT; 2D BATTALION, PRINCESS PATRICIA'S CANADIAN LIGHT INFANTRY, AND COMPANY A, 72D HEAVY TANK BATTALION, displayed such gallantry, determination and esprit de corps in accomplishing their missions under extremely difficult and hazardous conditions as to set them apart and above other units participating in the campaign, and by their achievements they have brought distinguished credit on themselves, their homelands, and all freedom loving nations."

30. The decision was announced in Parliament on February 21, 1951, to send the rest of the 25th Canadian Infantry Brigade to Korea in immediate response to a request made by the Unified Command.

31. For the purpose of simplifying problems of administration and command in the Korean theatre, the formation of the "First (Commonwealth) Division United Nations Forces" was announced on May 1, 1951. This unit incorporates under one command the forces of the Canadian, British, Australian, Indian and New Zealand armies now in Korea. The 25th Canadian Infantry Brigade comprises one third of the combatant troops of this Division, and in addition Canadian officers and men form part of the staff of the Divisional Headquarters.

## (B) North Atlantic Treaty Organization

32. Without minimizing the significance of the fighting in Korea, it is the view of the Canadian and other allied governments that the vital area of our global defence is in western Europe.

33. Developments in Korea or elsewhere throughout the world should not lead to any slackening of effort in building up collective security under the North Atlantic Treaty. That was the purpose of the twelve nations in entering into the treaty two years ago and nothing has happened to alter that objective.

*Organization*

34. In the treaty the member nations agreed that an act of aggression against any of them would be an act of aggression against all, to be resisted by all. To effect co-ordination under the treaty a council of Foreign Ministers was set up. Provision was also made for a Committee of Defence Ministers, a Committee of Finance Ministers, a Military Production and Supply Board, with numerous subordinate committees and later a Committee of Deputies of the Council. On the military side there was a Military Committee of the Chiefs of Staff of all twelve nations with, as executive, a Standing Group nominated by the Chiefs of Staff of Britain, France and the United States, as well as five regional groups, each with corresponding military organizations.

35. From the outset Canada took the view that the organization required streamlining and simplification. Our proposals to carry this out have now been largely put into effect. Instead of having three or more different committees of ministers, the Council will consist of ministerial representatives of the twelve governments who may be ministers of external affairs, defence or otherwise as appropriate. Responsible to the Council is the Committee of Deputies of the Council, which will in effect be the executive agency of NATO. On the military side, each of the twelve nations will be represented on a committee of military representatives in Washington continuously available to the Standing Group for consultation. Dealing with production is the Defence Production Board and with finance the Financial and Economic Board, which in effect will be responsible through the Committee of Council Deputies to the Council.

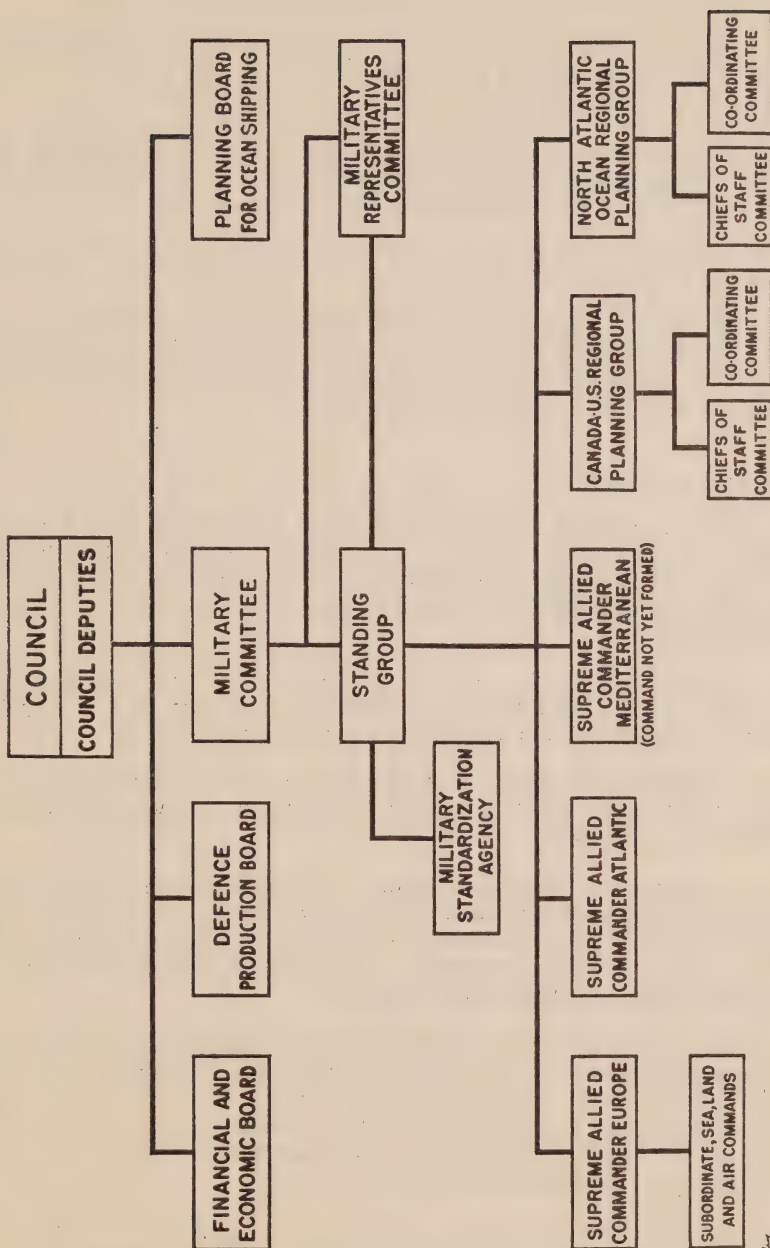
*Training for NATO*

36. Following the meeting of the Defence Committee at Paris in November, 1949, a Canadian offer to train army officers and aircrew for the forces of the other NATO countries was well received and arrangements were worked out under which army officers and aircrew from Belgium, France, Italy, the Netherlands and Norway would be trained in Canada.

37. A further offer made to NATO to increase aircrew training facilities by 1,100 per annum was accepted, bringing the total aircrew to be trained for other NATO nations to approximately 1,400 per annum. The recommendation of the Standing Group that all the vacancies available in respect of this additional number up to December 31, 1951, should be allocated to the United Kingdom, is being carried out.

# NORTH ATLANTIC TREATY ORGANIZATION

11





38. On May 4, 1951, 17 cadets from Belgium, Italy and Norway received their air navigators wings from No. 1 Air Navigation School, Summerside, P.E.I. to mark the first graduating class of this air training plan.

39. These navigators were followed two weeks later by 60 pilots from Belgium, France, Italy, The Netherlands, Norway and Canada, who graduated from No. 1 Flying Training Station, Centralia, Ontario.

40. Both graduating classes are milestones in the history of the North Atlantic Treaty Organization and are indicative of the expansion in air power and training now being pressed forward in Canada.

41. The expense of training aircrew for North Atlantic Treaty nations during the fiscal year 1951-52 is estimated at \$55,800,000.

42. In addition to training aircrew officers in the numbers mentioned, there are now attending the various staff colleges and other courses in this country officers from Belgium, France, Italy, the Netherlands, Portugal, the United Kingdom and the United States.

### *Equipment for NATO*

43. Last August Canada offered to NATO the armament and ammunition of U. K. type for a division. In November we were advised by NATO that this equipment should be supplied to the Netherlands. The equipment was overhauled, reconditioned, crated, shipped and delivered before the middle of December.

44. In accordance with the advice of the Standing Group, armament and ammunition for a second division was offered to Belgium on February 8 and the formal transfer of this equipment was made on March 12.

45. Again in accordance with the advice of the Standing Group of NATO, Canada has agreed to transfer the armament and ammunition for a third division to Italy.

46. Arrangements have been made to secure from the United States a number of 90 mm. anti-aircraft guns which will permit the transfer of more than four hundred 3.7 inch heavy anti-aircraft guns to European countries. Further transfer of other equipment of British type will be proceeded with later as replacement equipment is obtained.

47. Since there are men trained in Europe waiting for equipment, each division's equipment sent to Europe virtually adds a division's strength of equipped forces to the common deterrent force. When he was in Ottawa, General Eisenhower asked if Canada had available 25 pounder guns for a Luxembourg artillery regiment which was being raised. Arrangements were forthwith made to ship this equipment.

48. An order has been placed with Canadian industry for 50,000 platoon walkie-talkie wireless sets designed in Canada to specifications agreed upon with the United Kingdom and United States and likely to be adopted as standard by North Atlantic Treaty nations. The Canadian forces plan to use 5,000, the remaining 45,000 sets to be supplied to the other nations.



49. Canada is also manufacturing a large number of radar sets for supply to our allies.

50. General Eisenhower stressed the importance of equipment in his broadcast in the United States:

"... the most immediate need of Europe is munitions and equipment. Every one of the continental nations I visited can rapidly and markedly increase its resistance power if it can be promptly furnished additional supplies of this kind. To fill this need, our loyal neighbour, Canada, with Britain and others, is shouldering part of the load."

### *Units for NATO*

51. It is clear, however, that equipment without men is even less useful than men without equipment. For obvious reasons, it is important that all the countries concerned in collective defence should contribute men as well as equipment to the defence of Western Europe.

### *Navy*

52. The Royal Canadian Navy has an important role in the North Atlantic Treaty defence plans. In addition to the defence of harbours and our own coastal waters, the R.C.N. would participate with Britain and the United States in anti-submarine and escort work across the North Atlantic. Plans for the Navy will provide the necessary ships of the latest types now under construction or those now in commission or reserve, re-armed, refitted and recommissioned, so as to build up a force of about 100 ships equipped and manned.

### *Air Force*

53. Another substantial contribution to the planned force in being will be air force participation. Air power is especially needed. One squadron is already undergoing operational training in England. This overseas force will be built up to a wing of three squadrons during the next year and will join the Integrated Force.

54. It is planned ultimately to have in the Integrated Force an air division of eleven squadrons at full fighting strength, equipped with F-86E or CF-100 Canuck aircraft.

55. To support them there will have to be a supply line of reserve aircraft, depots and training establishments. The Air Force participation in the Integrated Force will require a very large portion of the total defence budget.

### *Army*

56. On February 5, in a statement to the House of Commons the minister of National Defence said:

"It is proposed to place in the integrated force elements of the Canadian Army. The force would initially be a brigade group or regimental combat team, and it is hoped that it may arrive at about the same time as the additional U. S. forces, but this may depend on events in Korea."

57. Material considerations alone might suggest that there would be greater military value in spending the same amount on equipment for forces already on the spot rather than on Canadian ground forces; but Canada and her allies believe that the fact of participation by the Canadian Army will show more emphatically than any amount of equipment that she stands together with them.

58. For this purpose the formation of a Canadian Brigade Group available for service in Western Europe was announced in May, 1951, and at the present time it is in the process of being raised. The new formation, to be known as 27th Canadian Infantry Brigade Group, is being recruited around the framework of some of our famous reserve army units. It will be part of Canada's regular forces and its officers and men will serve under active force terms of service and conditions and thus will be eligible for service anywhere.

59. At the end of June, 1951, 14,592 men had made application for entry and over 8,500 had been enrolled with more still to complete examination. The present plan is that the new Brigade Group will be available to become a Canadian Army component of the European Integrated Force commanded by General Eisenhower.

60. It is also planned that the force will include units to provide for the periodic rotation of officers and men for duty overseas and in Canada, in time providing all major reserve army formations with substantial reserves of experienced personnel in addition to the veterans now available. The intention is that, as far as possible, individual service abroad will be on the basis of one year for married and two years for single personnel. Accordingly, though the period of enlistment is for three years, if the military situation permits, officers and men who have completed their period of overseas service and who wish to return to civil life may request their discharge.

### *Third Objective: Preparations for Mobilization*

61. The third objective of Canada's defence is to have in being the administrative staff, the training establishments, the nucleus of trained officers and N.C.O.'s, the supply machinery and reserves of equipment needed for mobilization. In this, the importance of the R.C.N. (R), of the Canadian Army (reserve force) and of the R.C.A.F. (reserve) cannot be over emphasized.

62. In every country, the full potential fighting strength of the nation is developed only after war begins, and depends to a great extent on the development and organization of the reserve forces. Steps are being taken in the light of the present international situation to accelerate materially our state of readiness for full mobilization.

63. In June, 1950, the reserve forces had a total enrolment of 50,750. Since then there has been a net increase of 3,421 to a total of 54,171 at June 30, 1951. This total compares with 37,534 on June 30, 1948, showing an increase of 16,637 or 44% during the last three years.

### *The Reserve Navy*

64. All possible means are being exploited to give the young men now serving in the reserve the maximum training possible to fit them for duty in the event of a general war. Training facilities provided at Naval Divisions enable these divisions to undertake elementary specialist training for reserve personnel in addition to the basic training required by all men.

65. Professional training for UNTD and Services Colleges cadets has been integrated. Special staffs have been allocated for the training of cadets. The cruiser "Ontario" has been converted to accommodate and train 100 midshipmen and sub-lieutenants. Two frigates and a destroyer have been allocated to each coast during the summer months for cadet training.

### *The Reserve Army*

66. It is not, and could not be the role of a reserve army to be organized, equipped and trained to meet a well-trained enemy instantly in battle. The reserve army would fulfill two functions in the events of war:

- (1) Internal security and defence — To prevent sabotage at or before the outbreak of general hostilities in conjunction with the active forces, the R.C.M.P., the police and other agencies. During the period of anti-sabotage activity, the reserve forces would be joined by former officers, N.C.O.'s and men having experience in the active or reserve forces. In an emergency, this part of the task would continue until the situation had been stabilized and additional police and other forces built up to take it over.
- (2) Mobilization — To provide the organized formations, trained and qualified officers N.C.O.'s and men upon which units will be built up in the event of a war to achieve the maximum military potential of the nation. This operation would be pressed forward without waiting for the completion of the security role.

67. To assist the reserve forces in this work the following steps have been taken in the last four years:

- (1) Accommodation has been increased by 50%.
- (2) Ample equipment in good condition has been made available for training purposes.
- (3) Recommendations from reserve army associations regarding unit allowances have been implemented.
- (4) Pay and allowances for reserve officers and men have been increased three times since 1946.
- (5) Training at summer camps has been put on improved basis by having fatigues and chores looked after by permanent staffs allowing trainees to spend full time on intensive work. The number attending summer camps in 1950 was 11,241.
- (6) Annual training authorized has been increased to 60 days.
- (7) Every effort has been made to secure support for reserve forces by directing attention to their importance.



*The Reserve Air Force*

68. The air defence of Canada is of first priority in the R.C.A.F., and with this in view, emphasis has been placed on the establishment of auxiliary fighter and tactical squadrons and radar units in the reserve. As rapidly as equipment and facilities can be provided these units will be brought up to operational establishments. Annual camp periods will be continued and increased emphasis will be placed on operational exercises with the regular force so that the minimum operational training will be required should it be necessary to place reserve units and personnel on an active status in the event of a general war. Although the majority of key personnel are veterans of the last war, training programmes are in progress not only at the reserve units but at regular force schools to maintain a flow of new recruits. It is planned that over 1000 high school students will take full time training at auxiliary and reserve radar units during their summer holidays this year.

69. An experimental reserve technical training unit has been established in Vancouver and on the basis of its experience other similar units will be organized in various other centres.

70. Although not a component of the R.C.A.F., the Royal Canadian Air Cadets are providing a good basic training in citizenship, subjects allied to aeronautics, and physical training. As a result they are providing a steady stream of recruits for both regular and reserve components of the R.C.A.F.



## PART III

### MANPOWER

#### *Services*

71. Turning to the vital question of manpower, and womanpower as well, three years ago there were in the department and services working full time either as service or civilian personnel a total of 54,000. As of June, 1951, that figure was approximately 116,000, an increase of 115%.

72. To carry through plans for the next three years the strengths of the three services should be increased to more than 115,000 full time service personnel.

73. Recruiting towards this number has progressed favourably so that it is anticipated that the goal will be reached well before the end of the three year period.

74. During the first six months of 1951 there has been a net increase of 18,289 in the strengths of the three services, or an average of 3,048 per month. The recruiting programme which began in August 1950 with the enlistment of the Special Force and which was continued in May 1951 with the raising of the 27th Brigade Group, will be continued.

75. The following table compares the strengths of the active forces as at June 30 for the years 1950 and 1951:

Service	Strength June 30/50	Strength June 30/51	Increase	Percentage Increase
NAVY	9,246	11,709	2,463	27%
ARMY	20,369	43,250	22,881	112%
AIR FORCE	17,284	25,109	7,825	45%
TOTAL	46,899	80,068	33,169	70%

#### *Women*

76. Experience in the last war demonstrated that there were a number of jobs in the armed forces which could be filled very satisfactorily by women, but it was recognized that there were disadvantages connected with their employment in peacetime when the strength of the services was relatively small.

77. With the expansion of the armed forces, however, there is now a real need for a limited number of women to carry out duties which they can do as well as or better than men. This includes a complete new group of occupations related to radar and communications.

78. It is also desirable to have a small basic organization of women to plan for the build-up of their forces that would be needed in the event of a general war. Accordingly plans for enlisting women into the services were announced by the minister of National Defence on April 24, 1951 and recruiting for a relatively small number for the R.C.A.F. began on May 31, 1951. Recruiting for the R.C.A.F. will start in July and all three services will start recruiting women for the reserve forces, in the near future.

#### *Officer Training*

79. To meet the greatly increased requirements additional means are being made available for the qualification of officers.

80. For the Navy these are:

- (1) Granting of three-year short-service appointments to officers of RCN (Reserve). To be eligible the candidate must be a commissioned officer with the rank of midshipman or above in any branch of the RCN(R).
- (2) Granting of five-year short-service appointments for aviation duties to officers of the RCN (Reserve) who have had previous aircrew experience. To be eligible the candidate must be a commissioned officer of the active branch of the RCN(R) or an ex-officer of the Royal Canadian Navy or of a navy of the British Commonwealth or of the R.C.A.F. and must have attained wings standard:
- (3) Granting of seven-year short-service appointments for aviation duties to men of the RCN or other young men entered direct from shore. To be eligible a candidate must be unmarried, over 18 years and under 21 years of age (in case of serving personnel under 22 years of age). He must possess junior matriculation or equivalent education and must be physically fit for aviation duties.

81. For the Army:

- (1) A direct entry plan which provides training leading to the granting of short-service commissions to single high-school graduates between the ages of 18 and 25 who have junior matriculation standard or its equivalent.
- (2) Up-grading of active force other ranks. This permits other ranks who have reached trained soldier standard and who have junior matriculation or equivalent education to be appointed officer cadets and trained at their corps schools with a view to obtaining short service commissions. This plan also provides for the transfer from technical to non-technical corps of other ranks who may be qualified for up-grading to a commission but who could not be commissioned in their own grade due to the lack of technical or professional qualifications.

82. For the R.C.A.F.:

- (1) Under the direct entry plan for aircrew the educational requirements have been lowered from senior matriculation to junior matriculation. Candidates who meet the other necessary qualifications are accepted for training in the rank of Flight Cadet with short service commissions and are eligible for permanent commissions in competition with other short service applicants.

- (2) In addition the direct entry scheme was greatly expanded for aircrew candidates with university degrees who meet all other qualifications. These candidates are accepted for training in the rank of Flight Cadet and are given permanent commissions.
- (3) Other existing schemes have been expanded including subsidization to R.C.A.F. officer candidates attending university; commissioning from the ranks; re-appointments of veteran officers and short service commissions.

83. Officer candidates in training as of June 1, 1951 were as follows:

	Navy	Army	Air Force	Total
RMC & Royal Roads.....	71	189	119	379
University Plans.....	1073	2470	1065	4608
Other Plans.....		1642	824	2466
TOTAL.....	1144	4301	2008	7453

*Note: University Plans includes all candidates in C.O.T.C., U.N.T.D., R.U.F., U.A.T.P., and other arrangements for commissioning university students.*

*"Other Plans" include Command Contingent in the Army and Aircrew Flight Cadets in the R.C.A.F.*

#### *Civilian Employees*

84. Consequent to the rapid increase in the strength of the active forces, and the accelerated defence programme, there has been a proportionate increase in the number of civilian employees. As at June 31 there were approximately 36,000 civilians of whom 1,250 were employed in departmental administration at Ottawa. Naval Services employed 3,825, Army Services 7,225 and Air Services 3,100 in Ottawa and elsewhere.

85. Skilled and unskilled classes of labour who are not members of the civil service and who are largely employed in dockyards, camps, depots, air stations and on construction, numbered approximately 20,600.

## PART IV

### CONDITIONS OF SERVICE

#### *Pay and Allowances*

86. Rates of pay, subsistence allowances and separated families' allowance were increased effective December 1, 1950 and apply to the reserve forces as well as to the active and special forces.

87. In 1946 uniform pay scales were worked out for the Navy, Army and Air Force on the basis of comparison with rates of pay in eight basic industries. The latest increases bring up to date the structure arrived at in 1946.

88. The following table shows the effect of these increases on the pay of the personnel of the three services:

PAY AND ALLOWANCES FOR THE ARMED FORCES							
			Monthly Rates			Separated Family	
Service			Basic Pay	Subsis- tence	Total	Marriage Allow- ance	Allowance (one or more depen- dent children)
Navy	Army	RCAF					
Ord Sea (ent.)	Pte (ent.)	AC2	79	57	136	30	57
Ord Sea (tr.)	Pte (tr.)	AC1	83	57	140	30	57
AB	Pte	LAC	90	57	147	30	57
Ldg Seaman	Cpl	Cpl	103	57	160	30	57
PO II	Sgt	Sgt	119	67	186	30	67
PO I	S/Sgt	F/Sgt	139	75	214	30	75
CPO	WO II	WO II	161	75	226	30	75
CPO	WO I	WO I	180	85	250	30	35
A/Sub-Lt	2/Lt	P/O	162	61	217	40	61
Sub-Lt	Lieut	F/O	195	79	274	40	79
Lt	Capt	F/L	234	79	313	40	79
Lt Cdr	Major	S/L	312	98	410	40	98
Cdr	Lt Col	W/C	367	108	475	40	108
Capt	Col	G/C	517	119	636	40	119
Cdmr	Brig	A/C	689	128	817	40	128
R/Adm	Maj-Gen	A/V/M	786	135	921	40	135

89. A Foreign Service Allowance is now paid to the non-commissioned ranks of the three services serving with Canadian units abroad. Naval personnel will receive the allowance when on a sea voyage of thirty days or longer.

90. In order that members of the forces serving in the Korean theatre might receive special consideration in the matter of income tax, an amendment to the Income Tax Act was enacted at the session of Parliament in 1951. It provides for a deduction of \$1.00 per day from the tax payable by servicemen serving in an operational zone.



### *Married Quarters*

91. Following the Second World War a number of service establishments were set up in areas removed from urban communities. Housing accommodation, adjacent to the station if possible, was necessary for the families of the servicemen posted to these locations. This need, coupled with the overall housing shortage throughout the country, made it necessary to build housing for married personnel with the object of making the conditions of service comparable to those of a person in similar circumstances in civilian life.

92. The married quarters programme was begun in 1947. The plan then was to build 10,000 permanent married quarters in ten years. That plan has been greatly accelerated.

93. On the completion of the present permanent married quarters programme there will be 15,609 units. To date 6,359 have been completed, and 4,558 are under construction or contract. In addition there are 1,057 temporary quarters and 2,779 emergency quarters. The number of temporary and emergency units is being reduced as permanent units become available.

### *Education of Dependents*

94. Provision has been made for the education of the children of servicemen. Where no other schools are accessible, the service has established a total of twenty-two schools, and three others have been authorized. Children in attendance number 3,737.

95. Teachers are employed with the same qualifications and under the same conditions as in public schools in the provinces concerned.

### *Pension Provisions*

96. Under the Defence Services Pension Act as amended in 1950, pensions are provided for officers and men by means of deductions from pay (usually 6%) the government addition now being estimated at 10%. An officer or man having 20 years service may be retired on a pension of 2% for each year of service computed on his average pay and allowances during the last six years of service, multiplied by the number of years of service. For 35 years service a man would receive 35/50ths of his average pay during his last six years of service. A widow would receive one half her husband's pension entitlement until she remarried, plus an allowance for dependent children. Other allowances are provided for service which does not qualify for pension.

97. Under the Pension Act service personnel are eligible in the event of death or disability attributable to military service.

## PART V

### TRAINING

98. The technical nature of modern warfare, the high cost of equipment and the complex and exacting nature of operations enforces a high standard of training for service personnel. The majority of personnel receive their basic training in service schools prior to employment in field units. In certain instances where it is uneconomical for the services to establish training courses, arrangements are made to send personnel for training to other services, civilian schools, or industry.

#### *Navy*

99. While keeping administration structure ashore geared to the desired degree of preparedness, the Royal Canadian Navy has maintained more ships in operational readiness than ever before in peace time.

100. Sea training has been greatly stepped up and co-ordinated with that of other NATO countries. H.M.C.S. "Magnificent" and two destroyers completed their successful training cruise to nine European countries during the spring and summer at a time when five destroyers were operating on active service in Korea or on passage to and from the Far East.

101. H.M.C.S. "Ontario" is now on an extended training cruise to Australia and New Zealand exercising with ships of the Commonwealth navies.

102. In the field of anti-submarine warfare, exercises are continuous and in this connection a joint RCN-RCAF school of maritime warfare has been inaugurated.

103. Avenger aircraft obtained from the United States are proving as efficient in the role of anti-submarine warfare as the Sea Fury is for fighter protection at sea. Good progress has been made in the conduct of flying operations from H.M.C.S. "Magnificent" and during the past year more effective flying training has been carried out at sea than in any previous year.

104. The new entry training school at H.M.C.S. "Cornwallis", Nova Scotia, with a capacity for over 1200 new entries, supplies 300 young seamen for the fleet each month.

105. Specialized training of officers in communications, navigation-direction, and torpedo submarine, hitherto undertaken in the United Kingdom, is now carried out in Canadian naval schools. A junior officers' technical course of eleven months' duration has been established to train officers who have transferred from the reserve.

#### *Army*

106. On enlistment personnel are trained in basic military subjects — drill, target practice, the proper care of personal equipment, etc. Basic training is followed by instruction in subjects relating to the corps to which they belong, such as infantry, artillery or engineers. This training develops the skills necessary to enable the men to take their place in a unit team. They

are then transferred for joint training to units of the active force usually concentrated at Petawawa and Wainwright each autumn.

107. Specialist courses are conducted throughout the year to train selected individuals in additional skills, such as operating and maintaining various weapons. Others are trained as tradesmen and still other selected personnel are trained to become non-commissioned officers.

108. Personnel selected to join units whose functions include parachute jumping, are trained in this and in airtransportability at the Canadian Joint Air Training Centre at Rivers, Manitoba. In addition, this centre conducts training in offensive air support.

109. In order that units may be trained to live and fight in the arctic and sub-arctic a series of courses are conducted to train instructors in arctic warfare. The instructors in turn supervise the training of the various units in the techniques of living and fighting in these areas.

#### *Air Force*

110. Based on the experience of the last war and on surveys and job analysis the R.C.A.F. is further revising and streamlining the peacetime system of ground-crew training. Basic trade courses have been shortened and more emphasis is being placed on on-the-job or apprentice training. The revised system is in fact very similar to the training methods which would be employed should mobilization occur, and makes it possible to train the present high rate of intake of recruits for the rapid expansion of the R.C.A.F.

111. On-the-job training continues during employment in field units with such academic and classroom instruction as is necessary to qualify a man for higher trade grouping or familiarize him with new equipment. Factory courses on new equipment are given, particularly for key personnel who in turn instruct others.

112. Officer training commences with basic individual courses followed by on-the-job training. A fairly large percentage of officers must be given advanced specialist, staff and other training at various periods during their careers. Some of this training is conducted in the R.C.A.F. schools and much is being done in schools of other services, civilian colleges and industry. The staff college and operational training taken by R.C.A.F. officers in the U. S. and U. K. since the war is now proving of the greatest value as international commitments such as Korea and NATO develop.

113. Pilot training schools at Centralia (basic), Trenton (flying instructor school), Chatham and Greenwood (operational training) are being expanded to the maximum compatible with safety and operational efficiency. Gimli, Manitoba, is at present operating as a basic school but as the expansion takes place will later be converted to advanced training.

114. To meet the expansion of the R.C.A.F. and train pilots for NATO necessitates the establishment of seven additional pilot training schools. Experience of the last war proved the suitability of the prairie provinces for flying training. For maximum economy in supervision and maintenance, similar schools are being grouped together. Basic flying training schools will be located at Claresholm, Penhold and Moose Jaw. Advanced schools will be located at Saskatoon, Portage-la-Prairie and Gimli with a gunnery school linked with the advanced stage at Macdonald, Manitoba.



115. A school for specialized armament and operational training will be constructed in northern Alberta near Cold Lake. In conjunction with this school will be a large area in northern Alberta and Saskatchewan for use as an air firing and bombing range. Arrangements for the acquisition of the land for this large range area and also for the land on which to build the station are in progress. Construction will commence this year and it is planned to have the station in operation in 1952.

116. The navigation school at Summerside is being expanded and a new school will be opened this year at Winnipeg. This additional capacity is required for both the R.C.A.F. and NATO.

117. Radio officer basic training is undertaken at Clinton, Ontario, and includes a considerable amount of operation of radio and radar equipment in the air. Later these officers join aircrews at operational training units or squadrons for further training and employment.

118. Operational training, this final and most important phase, takes place when aircrew and groundcrew are trained together in squadrons for operations. Extensive northern and trans-ocean air freighting tasks, operational exercises with the Canadian Army and transportation of personnel and material for emergencies such as the Winnipeg floods, did much to ensure the later success of No. 426 Transport Squadron when it was allocated to the United Nations Korean air-lift. Similarly R.C.A.F. fighter and maritime squadrons are exercising with the other Canadian services and with the United Kingdom and U.S. forces.



## PART VI

### EQUIPMENT AND CONSTRUCTION

119. During the fiscal year ending March 31, 1951, orders were placed for defence equipment, amounting to \$438,214,622. The large expenditures on equipment are brought about by the staggering cost of modern equipment. Some figures about these costs have already been made public.

120. A new anti-submarine vessel costs over \$8 million; a two-engine fighter about \$700,000; a single-engine jet interceptor costs about \$400,000; a new operational airfield with runways, buildings and equipment, approximately \$20 million; a radar station with buildings and equipment, from \$3 million to \$6 million.

121. The present programme will have two useful results. The armed forces will have in their hands the most modern types of equipment and defence industry will be actually in production of military equipment should a general war occur.

122. The readiness of defence industry today corresponds to what it was about two years after the beginning of the last war, but with a far greater potential capacity.

#### *Naval Equipment*

123. Orders have now been placed for the construction of 39 new vessels for the Canadian Navy at an estimated cost of \$156 million.

124. Included in this shipbuilding programme are fourteen escort vessels, fourteen minesweepers, five gate vessels, two crane lighters, two revised Norton Class tugs, one loop layer and one northern patrol craft.

125. Keels of four of the escort vessels have been laid, two at Montreal and one at each coast. These four vessels are expected to be launched late in 1951 or early in 1952. The construction of these escort vessels presents to the Canadian shipbuilding and marine engineering industry a challenge which will result in great advantages for the industry itself, as well as for the Navy, through expansion of skills and facilities.

126. In the present construction programme it is expected that the northern patrol craft ordered in February, 1949, will be ready to launch in the latter part of 1951. The first of the minesweepers is expected to be launched in the fall of 1951. Additional ships of this class are expected to be launched and some completed during 1952. One gate vessel was launched in November, 1950, and should be completed in October, 1951. Four more gate vessels in the programme will be launched in late 1951 and completed in 1952.

127. In addition, there is a large programme for the re-armament and refitting of ships in the Royal Canadian Navy. Thirty-four frigates and minesweepers are to be taken out of reserves.

128. The cruiser "Uganda" will be commissioned and its name changed to "Quebec"; the destroyer "Crusader", and the minesweeper "Wallaceburg" have recently been commissioned. The minesweeper "Oshawa" will be com-

missioned shortly. The destroyers "Iroquois", "Haida" and "Algonquin" are now refitting and being modernized. The destroyers "Nootka" and "Micmac" will commence their armament modernization in late 1951 and early 1952 respectively. This programme will continue until all destroyers have been fully modernized as regards armament, anti-submarine weapons, fire control equipment, radar and accommodation.

129. Sorel Industries Limited are well advanced in the production of 3"50 calibre automatic naval guns, with which to equip both Canadian and United States ships. It is expected that this concern will shortly be making other types of armament, for use in both Canadian and U.S. services.

130. The total ship construction and refitting programme now under way will total \$200 millions.

### *Army Equipment*

131. Reference has been made to the equipment being produced and the men being trained for the North Atlantic Treaty Organization. Canada has had greater reason than any country to feel strongly about the need for standardization. One obstacle was the large quantity of U.K.-type equipment on issue or in mobilization stores — most of the armament for more than four divisions. This equipment was of the kind needed to strengthen the defences of Europe.

132. Because of the possession of this U.K.-type equipment in good condition, Canada was in a position to make a substantial contribution to collective defence by shipping equipment to our North Atlantic allies in Western Europe. This procedure was the only practical way for Canada to standardize on U.S. patterns. The armament for two divisions has already been shipped, as well as 25-pounders to Luxembourg. The rest will be supplied, including probably a large number of anti-aircraft guns, as arrangements are made to replace the equipment by purchase in the United States or production in Canada. Delivery of this equipment from the U.S. has already begun.

133. These transfers of equipment will—

- (1) strengthen the defences of Europe immediately;
- (2) bring British-type equipment together;
- (3) expedite standardization of the Canadian forces on U.S. type; and,
- (4) tool up Canadian industry for the production of equipment of U.S. pattern, further co-ordinating defence production with the United States.

134. The announcement that Canada was going to replace U.K.-type equipment by that of U.S. design was received with general approval. Such replacement entails certain minor organizational changes in the Canadian Army.

135. There is no intention of making any changes which will affect traditions of units or corps of the Canadian Army, badges of rank, regimental badges, colours, regimental affiliations with regiments of the British Army or other Commonwealth countries, distinctive items of dress such as those of Canadian Scottish and rifle regiments, or the titles of units.

136. There will be no need to undertake major changes in unit organization and tactical doctrine. Changes necessary as a result of variations in the characteristics of individual types of weapons will be kept to the minimum consistent with the proper use of weapons.

137. Insofar as training is concerned, changes will be related to those necessary to learn the mechanism and handling of weapons, a relatively easy matter for trained soldiers, while for soldiers in training it will not involve any greater difficulty to learn with one weapon than another. Training methods in general will continue as heretofore in accordance with the well-established principles and experience of the Canadian Army.

### *Air Force Equipment*

138. Aircraft production to meet the increased R.C.A.F. programme is gaining momentum. There are two broad phases of activity.

- (1) Reconditioning of aircraft — One hundred aircraft have been reconditioned in the last few months, a further 200 are in process with additional quantities scheduled for completion this year. The major activity concerns Lancasters, Mustangs, Harvards, Expeditors and Dakotas.
- (2) Purchase to meet three objectives —
  - (a) operational aircraft for defence of Canada;
  - (b) fighter aircraft for the NATO Air Division;
  - (c) training aircraft.

139. The R.C.A.F. has taken delivery in the last few months of 100 Mustang fighters purchased from the U.S.A.F.

140. Delivery of F-86E aircraft from the Canadair factory in Montreal has commenced and production is building up rapidly. Delivery will soon begin of CF-100 Canucks from the A.V. Roe factory in Toronto. Contracts for the production in Canada of Harvard trainers have been negotiated and deliveries will be made this year. Procurement has been undertaken of jet-trainer aircraft, twin-engine advanced trainers, primary trainers, transports and helicopters.

141. Production of radar and other electronic equipment for air defence has been accelerated to meet the expanded requirements. Radio navigational aids have been developed to increase serviceability and safety in flight and landing.

142. The R.C.A.F. is maintaining the closest liaison with the other services and with the U.S.A. and U.K. to ensure that its electronic policy and programme will provide the best support to combined operations.

### *Construction*

143. The construction programme for the Navy, Army, Air Force and Defence Research Board is almost five times as large as that provided in the last fiscal year. In that period funds allocated to defence construction were \$105,527,318. In the present estimates there is provision for \$493,390,935. Of that sum, it is expected that \$311,067,125 will be expended during 1951-52 and \$182,323,810 will cover contracts which it is anticipated will not be completed during this fiscal year.



144. This construction will provide increased facilities both for training and operations, especially aerodrome development, extension of runways, construction of hangars, workshops, instructional buildings and living quarters with all necessary public utility services.

145. A programme of this size must of necessity depend upon availability of labour and material and the ability of the construction industry to assume the additional load.

## PART VI

### DEFENCE RESEARCH

146. The Defence Research Board and its staff are working to increase the scientific research and development effort in support of the armed services. The extent of this expansion of scientific work is shown by the increase of the Defense Research Board's estimates from about \$25,000,000 in 1950-51 to \$32,495,928 in 1951-52. A part of this increase in expenditure represents increased activity in the Board's own establishments. In addition the Board has been able to arrange for other agencies to do more research and development work in support of the armed forces. This increase in activity is to be seen in other federal government agencies such as the National Research Council, Bureau of Mines, Department of Agriculture, and in the universities and industry.

147. New laboratories are already under construction for the Naval Research Establishment at Halifax and for the Radio Physics Laboratory and the Electrical Laboratory in Ottawa. Construction will soon begin on a new chemical laboratory in Ottawa, a medical research laboratory in Toronto, and a biological research laboratory at Kingston.

148. The Board is continuing its policy of directing the available scientific effort into a relatively small number of fields for which Canada has special facilities or requirements. By doing this, we are able to produce results of real value. Active liaison is maintained with the United States and the United Kingdom.

149. Research facilities and programmes of first-rate importance are already well established in the fields of defence against chemical and biological attack, explosives and propellants, naval research, certain aspects of armament design and development, arctic research, and the special problems of radio transmission in northern Canada. In the immediate future, emphasis will be put on an acceleration of activity in the fields of guided missiles, electronics, medical research, aeronautics, and the exchange of scientific information.

150. During the past year a major step forward was taken in the development of facilities for aeronautical research in Canada by the formation of the National Aeronautical Establishment. This new establishment has been formed from the aeronautical research facilities of the Division of Mechanical Engineering of the National Research Council, both on the Montreal road and at Arnprior. New buildings to house the flight research activities of the establishment are being built at the Uplands airport near Ottawa. The new establishment will have the advantage of guidance by the



National Aeronautical Research Committee. The establishment is operated for the Committee by the National Research Council, and will enable research and development facilities to meet the increasing demands of the Royal Canadian Air Force, the Royal Canadian Navy, civil aviation, and the rapidly expanding aircraft industry.

151. The Defence Research Board has also been responsible for research, development and scientific advice on problems of civil defence. The Board's staff will continue to discharge this responsibility for the Department of National Health and Welfare, especially in the realm of atomic, biological, and chemical attack.

152. The Defence Research Board is already working closely with the new Department of Defence Production to ensure that research and development activities are closely integrated with production. The chain of events from research through development to production and use is a continuous one and every effort is being made to ensure that the Canadian organization is designed to facilitate progress along the chain so that good ideas arising in research can be rapidly translated into finished products.

## PART VIII

### DEFENCE PRODUCTION

153. An event of major importance in the defence organization of the country was the creation of the Department of Defence Production. The purposes of this new department were outlined by the minister of Trade and Commerce in the House of Commons on February 8 and March 2. On March 5 he gave further details of the equipment programme.

154. Because of the immense productive capacity built up during and since the war, defence production is being largely fitted into existing industry, using existing plants, machinery and skills.

## PART IX

### NATIONAL DEFENCE ACT AND REGULATIONS

155. The National Defence Act passed at the first session of 1950 has been proclaimed except for the parts dealing with the discipline of the forces and certain sections which cannot be implemented until the new regulations have been published.

156. The immense task of preparing draft regulations for all three services has now been completed. As far as possible they are on a uniform basis. These regulations will be, it is expected, brought into effect in September, 1951. The act and regulations constitute the most comprehensive and uniform code of military law yet to be made, it is believed, in any country.

157. The Court Martial Appeal Board provided for in the Act has been set up. It is composed of Hon. Mr. Justice Charles Cameron (Chairman), Mr. Duncan K. McTavish, K.C., Mr. B. M. Alexandor, Mr. L. C. Audette, and Mr. Leonce Plante, K.C. Mr. George Audette will be Registrar of the Board.

## PART X

### DEFENCE APPROPRIATION

158. In the statement by the minister of National Defence to the House of Commons on February 5, 1951, it was indicated that the three-year programme outlined called for an expenditure of over \$5 billions. Of this amount the cash appropriation for the National Defence Department includes \$1,614,031,667 for the present fiscal year. As will be seen below, the actual amount of cash available to be spent on defence out of this and other votes will total \$1,893,031,667.

159. Out of \$1,614,031,667 for the Department provision is made for cash expenditure, for the Defence Services and Defence Research Board during the fiscal year 1951-52 of \$1,412,000,000 which, it is anticipated, will be expended as set out in the paragraphs following.

160. The appropriation for the Royal Canadian Navy is greatly increased from the last fiscal year to \$236,091,733. The increase is accounted for by the acceleration and enlargement of the Navy's ship construction programme and increased establishment.

161. The present fiscal year's appropriation for the Canadian Army is \$459,305,235. This is due largely to the increased establishment, including the maintaining of the Special Force in Korea, the projected sending of a ground force to Europe and the acquisition and replacement of equipment.

162. The appropriation for the R.C.A.F. is \$672,163,715 to cover the accelerated delivery of aircraft, the increased establishment, present and future commitments in Korea and Europe, the NATO air training scheme, and the larger expenditures on radar installations.

163. Defence Research will spend \$32,495,928 this year to meet the cost of expanded activities.

164. Administration costs amount to \$11,943,389 which includes the cost of Inspection Services enlarged to meet greatly increased deliveries of new equipment and expenditures on Civil Defence.

165. In addition to the amount of \$1,412,000,000 for the Defence Services and Defence Research, there is provided the sum of \$104,582,784 which represents the unused balance of the \$300,000,000 provided during 1950-51 for mutual aid. (Of the \$195,417,216, \$20 million were actually expended, leaving \$175 million available for the replacement of army equipment during the current year). Approval has been obtained for a further sum of \$61,383,103 for this purpose in the fiscal year 1951-52.

166. The total of these two appropriations, \$165,965,892, is required to cover the cost of training in Canada aircrew from NATO countries, the cost of replacing further army equipment which will be transferred under NATO arrangements and equipment to be manufactured under the direction of the Department of Defence Production for transfer by Canada to North Atlantic Treaty countries.

167. Other votes including the supplementary estimates for pensions, grants, etc., total \$36,065,775 making a total cash appropriation for the Department of National Defence of \$1,614,031,667.

168. This sum of \$1,614,031,667 represents the cash required to implement the Department's programme for 1951-52 and expenditures for Civil Defence in the amount of \$4,196,202 which amount is available to the Department of National Health and Welfare which has assumed responsibility for Civil Defence.

169. In addition to this amount, commitment authority of \$329,120,835 was obtained for the current year for which no money was required. The purpose of this is to enable the Department to carry out as much of the programme as possible without a large inflation of the estimates which would result in a corresponding balance of funds unexpended at the end of the fiscal year. This is necessary because of uncertainties regarding rates of production and delivery.

170. It should be noted that in addition to the appropriation for the current year of \$1,614,031,667, it is estimated that other government departments will be spending for purposes directly related to defence, \$104,000,000 provided for in the main estimates, together with a further \$51,000,000 provided for in supplementary estimates, or a total of \$155,000,000.

171. These amounts, together with the \$175 million set aside for replacement of three divisions' worth of equipment transferred to The Netherlands, Belgium and Italy, bring the total amount to be expended on Defence to approximately \$1,994 million.

172. A significant comparison may be made of this total with comparable figures for other years, that is, including expenditures on defence by other government departments. For the fiscal year 1947-48 defence expenditures amounted to roughly \$219 million; for 1948-49 the sum was \$294.5 million; for 1949-50, it was \$415 million; and for 1950-51 \$644.9 million. During these years there has been a steady increase, reaching its greatest increment in the current year of 1951-52. The provision of \$1,994 million for 1951-52 is greater than for the last four years combined.

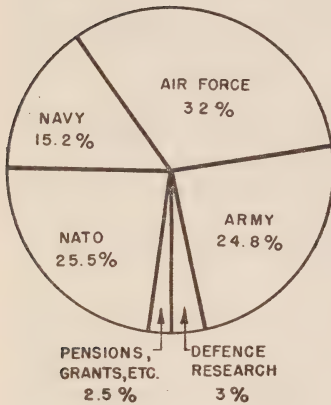
173. The diagram on page 32 shows the percentage distribution of the defence dollar, by services and by requirements for the years 1950-51 and 1951-52.

174. The following table includes not only the cash appropriation discussed in the preceding paragraphs but also the current commitment authority included in the estimates of both fiscal years.

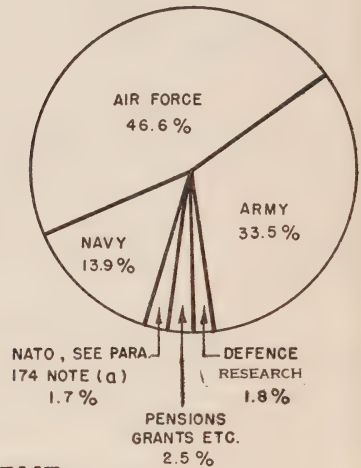
# DISTRIBUTION OF DEFENCE DOLLAR

## BY SERVICES

1950 - 51

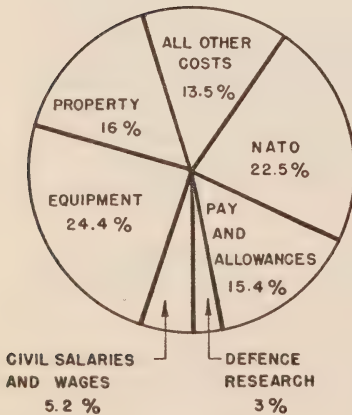


1951-52

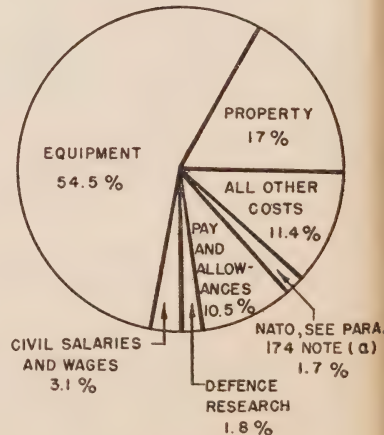


## BY REQUIREMENT

1950 - 51



1951 - 52





Distribution of Defence Appropriation

<u>By service</u>	<u>1950-51</u>	<u>1951-52</u>
Navy .....	132,200,476	277,754,980
Army .....	215,132,583	667,609,100
RCAF .....	277,142,837	929,577,891
DRB .....	25,915,361	35,385,475
NATO .....	195,417,216	32,915,892 (a)
Pensions, Grants, etc. ....	21,722,822	49,909,164
Total.....	867,531,295	1,993,152,502

<u>By Requirement</u>	<u>1950-51</u>	<u>1951-52</u>
Pay and Allowances .....	133,848,986	209,049,674
Civil Salaries & Wages .....	45,355,048	62,053,594
Equipment .....	211,767,382	1,087,571,386
Property .....	138,333,144	339,378,806
Research .....	25,915,361	35,385,475
All Other Costs .....	116,894,158	226,797,675
NATO .....	195,417,216	32,915,892 (a)
Total.....	867,531,295	1,993,152,502

NOTE: (a) Additional to this amount of \$32,915,892, commitment authority is included in the services appropriation for a further \$133,050,000 (or a total of \$165,965,892) for NATO equipment and services, and for \$50,000,000 replacement cost of equipment made available to Italy.

175. Everyone deprecates comparison of defence expenditures as between various countries. However, such comparisons are made and it might be useful if there were set out here the Canadian figures that might be used by others in making such comparisons. These are based on information provided by the Dominion Bureau of Statistics and other government departments concerned.

Total federal appropriations, 1951-52 .....	\$3,782,087,837
Provision for defence expenditure, 1951-52 (all departments) .....	1,994,000,000
Population of Canada, 1950 (estimated) .....	13,994,000
National Income, 1951 (estimated) .....	16,100,000,000
Gross National Product, 1951 (estimated) .....	20,000,000,000
Average per capita share of national income, 1951 .....	\$1,150.49
Per capita provision for defence, 1951-52 .....	142.49 138.91
Proportion national income, 1951, for defence .....	12.07%
Proportion gross national product, 1951, for defence .....	9.9% 9.7%
Proportion of federal budget 1951-52 for defence .....	52.72% 51.40%

## PART XI

## SUMMARY OF PROGRAMME

176. The programme envisaged by the government calls for its completion within three years but the job is intended to be carried through just as fast as it can be done.

177. The programme has fifteen main points.

*In the Navy*

- (1) About 100 ships and many small craft, either new or refitted and newly armed.
- (2) Permanent seaward defences of vital harbours.
- (3) The shipbuilding industry geared to produce additional ships rapidly.
- (4) Administrative and training staffs, depots and stores, for all-out mobilization.

*In the Army*

- (5) An airborne striking force, anti-aircraft artillery and other units for the defence of Canada against a direct attack.
- (6) Part of the active army with Integrated Force under General Eisenhower.
- (7) Part of the Canadian forces continuing in the Far East as long as that is necessary.
- (8) The administrative staff, training establishments, depots, stores, clothing and equipment to provide for rapid mobilization in a total effort.
- (9) Replacement of equipment on issue to active or reserve forces, or in stores, by latest type United States equipment purchased from the United States or made in Canada; and our industry in Canada tooled up to make a considerable part of this equipment.

*In the Air Force*

- (10) Forty regular and reserve squadrons with more than 3,000 aircraft additional to those we now have of the types suitable for the purposes intended.
- (11) Radar equipment manned and located to provide radar defence integrated with a corresponding United States chain of stations, connected by the necessary communication system and backed by fighters.
- (12) In Europe an air division of 11 fighter squadrons (included in the forty squadrons mentioned in point (10) above).
- (13) Airfields, men and equipment to train large numbers of aircrew for ourselves and other countries.
- (14) Industry in a position to produce large numbers of aircraft for ourselves and others.
- (15) Production of quantities of equipment for NATO and training of large numbers of officers to strengthen our common defence by assisting our allies.







CS. Storey

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# CANADA'S DEFENCE PROGRAMME

1952-53

HON. BROOKE CLAXTON

Minister of National Defence

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1952



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## PART I

### CANADA'S DEFENCE OBJECTIVES

1. The objectives of national defence remain as they were stated in the report "Canada's Defence Programme" tabled last year.

- (1) The immediate defence of Canada and North America from direct attack;
- (2) implementation of any undertakings made by Canada under the Charter of the United Nations, or under the North Atlantic Treaty Organization, or other agreement for collective security;
- (3) the organization to build up strength in a total war.

#### *First Objective: Defence Against Direct Attack*

2. The direct defence of Canadian territory involves first of all the assessment of the likelihood of attack by sea, by land and by air. As Canada would be working with the United States in the event of any attack on North America, planning for territorial defence involves the determination of the kinds of attack that would be possible or probable and the part that Canadian forces could most advantageously take in joint continental defence.

#### *Air Force*

3. The most probable method of attack upon Canada and the North American continent would be by air. Canada and the United States have been working together to construct a network of radar stations and communications facilities to warn and direct squadrons of fighters.

4. Permanent radar installations are being constructed to replace the temporary mobile facilities now in operation. In accordance with joint Canadian-U.S. plans for aerial defence, a number of the stations in Canada which are of primary usefulness in the defence of the United States will be manned by U.S.A.F. personnel, beginning this summer. Installations of primary usefulness to Canada are being manned by R.C.A.F. personnel. Both Canadian and U.S. systems are closely integrated to form a single organization for North American aerial defence.

5. At the same time fighter defence in Canada, both regular and reserve, is being built up. At present the fighter squadrons for this purpose are equipped with Vampire and Mustang aircraft. These will be replaced by CF-100's as they become available. In addition, there are a number of squadrons equipped with F-86E's and designated for the NATO air force in Europe. In the meantime they are available for the defence of this continent.

6. Control and Warning Units of the Reserve Air Force have been organized and are training as part of the radar defences of Canada and the United States.

7. In addition, the organization for a Ground Observer Corps is being prepared. Its function will be to provide a body of civilian aircraft spotters and observers to plot and report low flying aircraft over Canadian territory.

### *Army*

8. The Army is continuing to maintain a Mobile Striking Force for defence against a surprise airborne attack. The rotation policy being carried out in the 25th Brigade in Korea makes available to this force returning veterans with battle experience.

### *Navy*

9. In the defence of Canadian territory, the Navy is patrolling coastal waters, developing permanent seaward defences and preparing to keep open the approaches to harbours. Ships are being built and reconverted and equipped with the latest types of weapons, and are being manned by personnel specially trained for these duties.

## **Second Objective: The United Nations and NATO**

### **(A) United Nations**

10. Canada, with other United Nations members, is continuing to share the responsibility for halting aggression in Korea and attempting to restore the peace there.

11. The Navy is maintaining three destroyers in Korean waters. A rotation system is in effect whereby the ships are successively replaced. The total mileage steamed by the five R.C.N. ships in Korean waters from the start of the operation to January 31, 1952, is more than 438,390 miles.

12. The R.C.A.F., together with Canadian Pacific Airlines aircraft under charter to the Government, is continuing to provide a trans-Pacific service in support of the United Nations operations in Korea. From July 29, 1950, to January 31, 1952, the 426 R.C.A.F. Squadron made 330 return crossings over the Pacific and flew 21,988 hours.

13. The 25th Canadian Infantry Brigade comprising one third of the fighting strength of the First (Commonwealth) Division, United Nations Forces, has been continuously maintained at full strength.

14. The first battalion of P.P.C.L.I. has already been replaced by the second battalion and other units are being progressively replaced.

### **(B) Contribution to NATO**

#### *Units for NATO*

15. Air power will be the major contribution by this country to the Integrated Force of the North Atlantic alliance in Europe. This is reflected in the relative size of expenditures on R.C.A.F. account and is in conformity with the view that this is a medium in which Canadian experience and capacity can most effectively be employed. It is proposed to increase the Canadian contribution from 11 to 12 squadrons of F-86E Sabre fighters. It is planned that a new squadron, with trained air and ground crew and the necessary aircraft will be set up about every two months. These squadrons will be equipped with F86 E fighters produced

by Canadair Co. Ltd. They will be organized into an air division which is the air force formation normally adequate to provide air support for an army of four or more front line divisions.

16. Two R.C.A.F. squadrons are now stationed at North Luffenham in England and more will be proceeding to Europe as the necessary facilities become available.

17. The 27th Brigade Group has been raised, given its initial training in Canada and is now in Germany under General Eisenhower. It is grouped, in conformity with his advice, with the British Army of the Rhine.

18. A rotation system will be in force for members of the 27th Brigade Group whereby married men will be replaced after having served a year in Germany and single men after having served two years.

19. As its share of the North Atlantic defence, both in submarine defence and the protection of coastal waters and approaches, the Navy is to have a total of 24 ships available for service in 1952, and it will have, in addition, 12 ships for other purposes. As previously announced, the total figure is to be built up to about 100 ships and many small craft, either new or refitted and newly armed, by 1954.

#### *Equipment for NATO*

20. Since the inception of the Mutual Aid Programme in 1950, armament and ammunition of United Kingdom pattern for three divisions have been transferred to The Netherlands, Belgium and Italy. Additional quantities of armament and ammunition have been allocated to The Netherlands, Belgium, Italy, France, Portugal, Luxembourg, Denmark and Norway.

21. Further quantities of armament and ammunition, Firefly and Seafire aircraft and Griffon engines have been transferred from existing stocks. As announced, Canada has arranged to make some hundreds of aircraft for the R.A.F. as mutual aid. The United States will supply and pay for what is called the "government furnished property", the main items of which are the jet engines, instruments and armament, representing about 30 per cent of the cost of each aircraft.

22. Canada is similarly producing a number of F-86E's for sale to the United States and on this order, delivery has already commenced.

23. Production of Canadian-designed walkie-talkie wireless sets, 155 mm. howitzers and No. 4 Mark VI radar sets, is proceeding and a number will be available for transfer in 1952-53.

#### *Mutual Aid Appropriations—1950-51, 1951-52*

Armament and ammunition from stocks.....	\$ 271,859,126
Aircraft and engines, from stocks.....	808,000
Aircrew training .....	55,800,000
Radio and radio sets, from new production..	30,480,000
Artillery from new production.....	2,435,982
	<hr/>
	\$ 361,383,108



### *Training for NATO*

24. Under arrangements made in 1950 Canada has undertaken to train aircrew for NATO up to a total of 1,400 graduates per year. As of January 31, 1952, 135 pilots and 84 navigators from the United Kingdom, France, Belgium, Italy, Norway and The Netherlands had been trained in Canada, and another 787 were undergoing training. The approximate cost to Canada for training a pilot has been \$22,000 and a navigator \$15,000—this is in addition to initial capital costs which to date total approximately \$27.5 million.

25. In 1950 Canada also offered vacancies in officer courses at Canadian Army Schools of Instruction to other member nations of NATO. A total of 53 officers from Australia, Belgium, France, India, Italy, The Netherlands, Pakistan, Portugal, the United States and United Kingdom attended Canadian Army courses.

### *Contributions to the Military Costs of NATO*

26. One of the most urgent requirements in connection with Canada's air contribution to NATO is the provision of airfields in Europe. The twelve R.C.A.F. squadrons to be stationed on the Continent by 1954 will need four airfields, two in Germany and two in France according to present plans. This involves not only the building of runways but also the construction of hangars, maintenance facilities and living quarters.

27. Under the arrangements agreed upon by the NATO Council, the provision of these airfields and associated facilities, known as infrastructure, is to be a joint operation. Of the portion of the programme to be initiated this year, Canada's proposed share is \$22.7 million of which only a part will be spent during the fiscal year 1952-53.

28. So far as the airfields for Canada's use are concerned, the infrastructure fund will meet the cost of their operational elements, consisting of runways, taxi strips, hangars, operational buildings and communications, built to standards laid down by NATO.

29. For the airfields in France, France will provide the necessary land, while living accommodation, messing and recreational facilities will be paid for by Canada. The basis of financing airfields in Germany has not yet been determined.

30. The total expenditure in 1952-53 covering the contribution agreed to at Ottawa and Lisbon, living accommodation, messing and recreational facilities and contribution to SHAPE and other military headquarters is estimated at \$27.5 million.

### *Third Objective: Developing Maximum Strength*

31. The expansion of Canada's active Navy, Army and Air Force, and the build up of industrial productive capacity for defence create conditions favourable to the most expeditious mobilization of all our resources if war should come.



32. In addition to the reserve forces actually in training, there are 29,446 officers and men of the three services who have retired since April 1, 1946 many of whom are still fit for service. Taken together with the younger veterans of the Second World War, they constitute a large pool of potential strength to meet the first calls of mobilization.

33. In the Naval reserve, training facilities at local reserve Divisions enable personnel to undertake basic training and elementary specialist courses, each Division being equipped to train its members for a particular branch. Since March of 1948 the strength of the R.C.N. reserve has increased by over 2,600 to a total of approximately 5,000.

34. The reserve Army strength has increased by over 13,000 since March 1948, to a present total of approximately 47,000. Despite the fact that 5,000 members of the reserve Army joined the active force in 1951, 11,000 took summer training, approximately the same number as the previous year.

35. The strength of the R.C.A.F. reserve has grown from 744 in March, 1948, to around 4,800 at the present time. The reserve Air Force has been developed with a view to providing trained operational and technical units which could fit quickly into the air defence organization of the active force in the event of an emergency.

36. Reserve radar and other ground-crew and technical units have been established at a number of centres across Canada and others are being formed or are planned.

37. It is expected that about 1,700 high school students will take full-time training during the summer vacation period of 1952, at reserve units and squadrons. They will receive instruction in all technical and ground-crew trades, including radar.

## PART II

**MANPOWER***Services*

38. On March 31, 1952, there were 95,394 men and women in the three services of which 13,505 were in the Navy, 49,278 in the Army and 32,611 in the Air Force. This represents an increase of approximately 103 per cent in the twenty-month period between the beginning of the war in Korea and March 31, 1952.

39. The defence programme announced in February, 1951, gave a manpower target of 115,000 men and women in the active forces. As of January 31, 1951, the strength of the three services was 64,237. The increase in the following fourteen months was 31,157.

40. The following table gives the recruiting and wastage rates for the last two years:

	<i>Navy</i>	<i>Army</i>	<i>Air Force</i>	<i>Total</i>
Strength March 31, 1950.....	9,259	20,652	17,274	47,185
1950-51				
Intake .....	3,040	18,174	6,292	27,506
Wastage .....	1,217	3,840	1,207	6,264
Net Increase .....	1,823	14,334	5,085	21,242
Strength March 31, 1951.....	11,082	34,986	22,359	68,427
1951-52				
Intake .....	3,997	22,385	12,651	39,033
Wastage .....	1,574	8,093	2,399	12,066
Net Increase .....	2,423	14,292	10,252	26,967
Strength March 31, 1952 .....	13,505	49,278	32,611	95,394

*Approximate Employment of active forces at March 31, 1952**Navy*

Complement of ships for NATO, Korean Force and defence of coastal waters.....	5,200
Training staff and trainees <sup>1</sup> .....	4,100
Commands and administration.....	1,200
Dockyards and bases.....	3,000

Total 13,500

*Army*

Units for NATO, Korean Force and defence of Canada .....	26,000	
Training staffs and trainees <sup>2</sup> .....	7,400	
Command and administration .....	2,300	
Service units .....	13,600	
Total		49,300

*Air Force*

Units for NATO, Far Eastern airlift and defence of Canada .....	5,600	
Air Transport, search and rescue .....	2,800	
Training staffs and trainees <sup>3</sup> .....	16,900	
Commands and administration .....	1,500	
Service units .....	5,800	
Total		32,600 <sup>4</sup>
Total Three Services		95,400

<sup>1</sup> Not including U.N.T.D. and Canadian Services Colleges

<sup>2</sup> Not including C.O.T.C. and Canadian Services Colleges

<sup>3</sup> Not including R.U.F. and Canadian Services Colleges

<sup>4</sup> Not including approximately 1,175 NATO trainees

*Manpower Ceilings*

41. In accordance with the National Defence Act, the following ceilings were established on February 13, 1952:

Royal Canadian Navy .....	16,300
Canadian Army .....	51,715
R.C.A.F. ....	42,000

42. The purpose of these ceilings is to enable appropriate establishments and rank structures to be laid down.

*Women*

43. Women are being recruited for the regular force of the R.C.A.F. to perform clerical, stenographic, radar, telecommunication and other similar duties which, experience has shown, women can do as well as or better than men.

44. From April 30, 1951, when recruiting was commenced, to March 31, 1952, 52 officers and 2,408 women, totalling 2,460 had joined the active force of the R.C.A.F. So far it has not been considered desirable to enlist women for the regular forces of the Navy and Army. However, during the same period 214 officers and 2,925 women, totalling 3,139, had joined the reserve forces of the three services.

### *Officer Recruiting*

45. In addition to obtaining suitable officer candidates from the Canadian Services Colleges, from the reserves and from the university plans—the University Training Divisions, Canadian Officers' Training Corps and Reserve University Flights—the services have employed the following methods to meet greatly increased requirements:

#### *Navy*

1. Three-year short-service commissions in the active Navy, available to members of the reserve Navy of the rank of midshipman or above.
2. Five-year short-service appointments for aviation duties to officers of the R.C.N. who have had previous aircrew experience. To be eligible the candidate must be a commissioned officer of the air branch of the R.C.N. (R) or an ex-officer of the Royal Canadian Navy or of a navy of the British Commonwealth or of the R.C.A.F. and must have attained "wings" standard.
3. Seven-year short-service appointments for aviation duties to men of the R.C.N., or other young men direct from shore. To be eligible a candidate must be unmarried, over 18 years and not have reached his 23rd birthday (in the case of a serving candidate, his 24th birthday) by the 1st of January of the year in which his course commenced.
4. Financial assistance to R.C.N. officer candidates during final year at university.

#### *Army*

1. Short-service commissions to candidates between the ages of 18 and 25 who have junior matriculation standing or its equivalent.
2. Up-grading of active force other ranks. This permits men in the ranks who have reached trained soldier standard and who have junior matriculation or equivalent education to be promoted to officer cadets and trained at corps schools with a view to obtaining short-service commissions.
3. Financial assistance to Canadian Army officer candidates during final year at university.

#### *R.C.A.F.*

1. Direct entry for aircrew candidates between the ages of 18 and 24 with junior matriculation standing. Candidates who meet the other necessary qualifications are accepted for training with the rank of Flight Cadet, and are eligible for regular commissions in competition with other short-service applicants.
2. Aircrew candidates with university degrees who meet all other qualifications and are between the ages of 18 and 24, are accepted for training with the rank of Flight Cadet and are given regular commissions.
3. Financial assistance to R.C.A.F. officer candidates during their final year at university.
4. Qualified veterans, aircrew and non-flying branches under 35 years of age are eligible for short-service and regular commissions.



5. Commissioning from the ranks of men with at least 10 years' experience and holding the rank of Flight Sergeant and above, who have held the highest grouping in their trade.
6. Direct entry of candidates under 30 years of age for non-flying duties who possess a university degree or equivalent qualifications.

46. Officer candidates in training are as follows:

	<i>R.C.N.</i>	<i>Army</i>	<i>R.C.A.F.</i>	<i>Total</i>
Canadian Services Colleges . . . .	95	237	163	495
U.N.T.D., C.O.T.C., R.U.F. . . . .	1,430	1,920	801	4,151
Undergraduates (Officers) . . . . .	26	103	130	259
Other plans . . . . .	...	1,850	963	2,813
Totals . . . . .	1,551	4,110	2,057	7,718

Notes: 1. These are preliminary figures as at March 31, 1952, subject to final adjustment.

2. "Other Plans" include Command Contingent cadets in the Army, and Flight Cadets in the R.C.A.F.

### *Civilian Employees*

47. In the various establishments across Canada, the Department of National Defence employed, as of March 31, 1952, 20,530 classified civilian personnel. These comprise mainly clerks, stenographers, cleaners, and a variety of technical categories, such as engineers, architects, draftsmen, etc.

48. There were in addition 19,369 personnel employed in the dockyards, camps, depots, air stations and on construction at prevailing rates of pay.

## PART III

## CONDITIONS OF SERVICE

*Pay and Allowances*

49. Basic pay and rates of subsistence allowance and separated family allowance for the three services were increased for all ranks effective December 1, 1951, a year after the previous increase. This new increase brings the rates of pay of service personnel into line with comparative rates of pay in the basic industries upon which the Armed Forces pay scales were established in 1946.

50. These new increases are applicable to both the active and reserve forces.

51. The following table shows the new rates of pay and allowances which became effective December 1, 1951, for all ranks of the three services:

Navy	Army	RCAF	Basic Pay	Subsistence Allowance	TOTALS	Marr. Allow.	Separated Family's Allowance (with Children)
Ord Sea (entry)	Pte (ent)	AC 2	87	61	148	30	61
Ord Sea (trained)	Pte (tr)	AC 1	91	61	152	30	61
AB	Pte	LAC	98	61	159	30	61
Ldg Seaman	Cpl	Cpl	112	61	173	30	61
PO II	Sgt	Sgt	129	72	201	30	72
PO I	S/Sgt	F/Sgt	150	81	231	30	81
CPO	WO II	WO II	174	81	255	30	81
CPO	WO I	WO I	193	92	285	30	92
Midshipman	—	—	102	61	163	40	61
A/Sub-Lt	2/Lt	P/O	170	65	235	40	65
Sub-Lt	Lt	F/O	210	89	299	40	89
Com Offr	—	—	253	94	347	40	94
Lt	Capt	F/L	255	94	349	40	94
Lt Cdr	Major	S/L	335	113	448	40	113
Cdr	Lt-Col	W/C	395	126	521	40	126
Capt	Col	G/C	555	139	694	40	139
Cmdr	Brig	A/C	737	153	890	40	153
R/Adm	Maj-Gen	A/V/M	881	165	1046	40	165

52. In addition to the general increase a fully trained infantryman, and other trained combat soldiers, have become for the first time qualified for tradesmen's pay.

*Married Quarters*

53. Since July 1951, approximately 2,400 units have been added, bringing to 8,703 the total number of permanent married quarters now available. In addition about 5,200 units are under construction or contract and about 2,300 units are proposed for the remainder of the 1951-52 and the 1952-53 construction programmes. The total married quarters programme when completed will consist, therefore, of approximately 16,200 units as compared to 15,609 units as last announced, and with the 3,160 remaining temporary and emergency units will bring the total to about 20,000.

*Education of Dependents*

54. At the present time 29 schools are run by the Department, employing 235 teachers and attended by approximately 6,100 children of service personnel in centres where there are no civilian school facilities available. In all provinces service schools are operated to provincial standards and in accordance with arrangements worked out with provincial authorities.

## PART IV

### TRAINING

55. The growing technical complexity of modern warfare makes necessary the possession of special qualifications by an ever-increasing proportion of officers and men in the armed forces. In general it is not possible to enlist personnel with the essential technical qualifications, and one of the most important training tasks is the instruction of sailors, soldiers and airmen in the skills essential to the operation and maintenance of electronic and mechanical equipment.

56. Even where skilled personnel can be directly enrolled they still must have special training to adapt their knowledge to maintain or use military types of equipment and to lead to the teamwork necessary in sea, land or air operations.

57. While technical training is one of the chief concerns of all three services, it is, of course, ancillary to the training of combat units. The increase of about 100 per cent in the size of the three services from the summer of 1950 to the middle of March 1952 is an indication of the growth that it has been necessary to effect in all training staffs and facilities in order to take care of the flow of recruits.

#### *Navy*

58. The Navy, from August 1950 to January 31, 1952, has increased its yearly output of trained officers and men from about 5,300 to approximately 9,500, and has, from July 1950 up to March 31, 1952, put in commission and manned 9 additional ships.

#### *Army*

59. The Army has, in the same period, raised and trained two infantry brigade groups for dispatch to Korea and Europe, and has increased its intake capacity from an average of about 200 per month before Korea to an average of about 1,300 per month at the present time. This has involved the renovation of wartime facilities at many camps, and the construction of new buildings where necessary. At Wainwright Camp, in Alberta, for example, accommodation has been increased from 2,000 to 5,000 capacity, and in addition three lecture buildings, three drill halls and other training facilities have been constructed. At other camps facilities have been expanded as required, according to troop movements and the flow of trainees. Twelve thousand acres have been obtained on a ten-year lease from the Department of Citizenship and Immigration, at Sarcee, near Calgary, Alberta.

#### *Air Force*

60. Since August, 1950, the R.C.A.F. has enlarged its yearly output capacity of trained groundcrew from 3,100 to 9,500, and of aircrew from 460 to 2,540, including NATO trainees. This has involved the re-opening



of six flying schools and extensive modifications to others. The training of aircrew and groundcrew for the expanding air power of Canada will continue to be one of the major commitments of the defence programme. In this field perhaps more than in any other, technical developments have come in quick succession, and the task of keeping abreast of them is both expensive and arduous.

## PART V

## DEFENCE RESEARCH

61. The Defence Research Board and the Defence Scientific Service have increased the scientific research and development effort in support of the Armed Forces. The extent of this expansion is indicated by the increase of the Board's estimates from about \$32,500,000 in 1951-52 to \$42,000,000 in 1952-53. This increase is necessitated by greater activity in the Board's own laboratories and field test stations, and by increased participation of industry in the development of new weapons and equipment for the forces. It is reflected in the extent to which other government agencies such as the National Research Council, the Bureau of Mines, the Departments of Agriculture and Transport and the universities and industry are devoting more time and effort to defence work.

62. It is the policy of the Board to select and concentrate its efforts upon those problems that are of particular importance to Canada, or for which Canada has unique resources or facilities. Existing research facilities are used wherever possible to meet the needs of the armed forces, and the Board itself has built up new facilities only in those fields which have little or no civilian interest. From the policy of specialization it follows that close collaboration must be maintained with Canada's larger partners. Specialization is only made possible through the willingness of the United Kingdom and the United States to trade the results of their broader programmes for the less numerous but nonetheless valuable benefits of Canadian research.

63. One important and logical field of specialization for Canada is arctic research. This interest in arctic problems is reflected in nearly all the Board's activities. An outstanding example is a programme of ionospheric research done jointly with the Department of Transport. The north magnetic pole is located on the northern edge of Canada's mainland. The auroral belt in which ionospheric disturbances make radio communication difficult is centred around the north magnetic pole and therefore extends well down into the inhabited areas of Canada. This means that Canada has unique radio communications problems which are not duplicated elsewhere in the world except in northern Siberia and which are of vital importance not only to defence but to civil aviation and communications. It is therefore appropriate that Canada should put special effort into this field of research and that the research should be supported both by civil and military parts of the government. The Board's Radio Physics Laboratory has designed and supplied the special equipment and has trained the operators for a chain of Department of Transport ionospheric observatories which are scattered across the auroral belt. The results of the observations from these stations are analysed at the Radio Physics Laboratory and are used not only to issue current forecasts of the most effective radio transmission frequencies but are also used in more fundamental research to try to improve communications in the north. The results are also passed to the Central Radio Propagation Laboratory in Washington where they are used in the compilation of

world-wide frequency prediction tables. The whole programme is an example of logical specialization and of effective interdepartmental and international co-operation.

64. Another important project, in connection with military activities in the northland, has been the study of insect pest control. Mosquitoes and black flies represent a real obstacle to living and working in northern regions during the summer months, and extensive research has been carried out on a co-operative basis by Defence Research Board, the Department of Agriculture and the R.C.A.F. to devise means of control of these pests, and protection for personnel operating where they are prevalent.

65. The development of guided missiles is a field in which close co-ordination is maintained with United Kingdom and United States research activities. Canadian activity in this field is directed toward the design of an air-to-air missile to meet the needs of the R.C.A.F.

66. Construction is proceeding rapidly with the Defence Research portion of the development of Uplands Airport near Ottawa as an up-to-date military and civilian station. The Defence Research contribution consists of a hangar, workshops and associated facilities to house the National Aeronautical Establishment which is designed to meet the increased military and civilian demands for aeronautical research.

67. New laboratory buildings will shortly be utilized at the Naval Research Establishment at Halifax, the Canadian Armament Research and Development Establishment near Ottawa, and the Defence Research Kingston Laboratory at Kingston. Construction has started on new laboratories for the Defence Research Medical Laboratory at Toronto, and the Defence Research Chemical Laboratories near Ottawa.

68. Pursuing its established policy, the Defence Scientific Service continues to make available to the scientific community at large those fruits of its work which have other than a purely military importance.

69. Close liaison is maintained between the Defence Research Board and the Department of Defence Production to ensure that research and development activities are closely integrated with production.

## PART VI

## EQUIPMENT AND CONSTRUCTION

*Equipment Contracts*

70. During the fiscal year ending March 31, 1952, about 165,000 contracts, placed by the Department of Defence Production for defence equipment and stores, amounted to nearly \$1.7 billion.

*Naval Equipment*

71. With the recent addition of harbour craft and inner patrol vessels a total of some 54 new vessels are now on order for the R.C.N. including fourteen escort vessels, fourteen minesweepers, five gate vessels, a northern patrol craft and auxiliary vessels.

72. The first escort vessel H.M.C.S. "St. Laurent" was launched in Montreal in November 1951. The keels of a further five have been laid, of which three should be launched during the year. The escort vessel programme is now entering the second and more complicated phase of construction concerning the equipping and outfitting of these ships, which will make considerable demands upon Canada's technical capabilities particularly in the fields of marine engineering and electronics.

73. The northern patrol vessel H.M.C.S. "Labrador" was launched at Sorel in December 1951 and is expected to be completed in the late fall of 1952.

74. Of the fourteen minesweepers, two (H.M.C.S. "Cowichan" and "Gaspe") were launched at Lauzon, Quebec, in November 1951.

75. Of the five gate vessels one has been completed and commissioned as H.M.C.S. "Porte Saint-Jean" and the remaining four are expected to be completed during 1952.

76. In addition to this new construction an extensive programme of refitting and modernization is being carried out on existing ships. A total of 34 frigates and minesweepers, and three destroyers are at present undergoing refit, and one destroyer and one cruiser have already been recommissioned. This programme will continue until all destroyers have been fully modernized with new types of armament, anti-submarine weapons, fire control, radar equipment and accommodation.

77. Headway has been made in the production of three-inch 50 calibre automatic naval guns and mountings at Sorel Industries for both the R.C.N. and U.S.N. First deliveries are expected during the coming summer.

*Army Equipment*

78. Deliveries on orders of U.S. army equipment are proceeding. First deliveries from Canadian production of U.S. pattern equipment are anticipated in the last quarter of 1952.



79. The 27th Canadian Infantry Brigade is using the new British Centurion tank and a small number have been received in Canada for training purposes, and more are to come as they are produced.

#### *Air Force Equipment*

80. One hundred and twenty aircraft have been reconditioned within the last four months with another 155 in process. These include Lancasters, Mitchells, Mustangs and Dakotas. F-86E fighters, Harvards and Chipmunks are being delivered on schedule. Jet-engined trainers are scheduled for delivery beginning late in 1952. Medium transports purchased from the U.S.A. are expected to be available and in operation during the coming summer.

81. The CF-100 and the Orenda engine were designed to provide a long-range, all-weather fighter. This was Canada's first entry into the field of fighter design and development. When the prototypes were produced, tests gave good grounds for believing that an aircraft had been successfully developed in considerably less time than is usual with a fundamentally new design.

82. However, further modifications were made in 1951 both in the airframe and in the engine design. It is expected that the planes will be coming off the production line by June of this year.

83. The R.C.A.F. squadrons in Europe will be equipped and maintained from R.C.A.F. sources. To this end an Air Materiel Base will be established in the U.K. to provide close support. Advantage is being taken of the supply lines and facilities now operated by the R.A.F. and U.S.A.F., which will also supply logistic support as necessary.

#### *Construction*

84. The large construction programme is necessitated by the growth in the size and operations of the armed forces. Today there is a total of 95,000 officers and men, of whom 47 per cent are married, making an estimated service population including dependents of over 200,000.

85. In addition to married quarters, it has been necessary where existing civilian facilities are inadequate, to build chapels, schools, recreational buildings and other facilities.

86. Designs and standards of construction and accommodation have been developed on an inter-service basis to secure the utmost in uniformity and economy. Provision of accommodation is based on the recommendations of health authorities.

87. The build-up of the forces has made it necessary in some cases to maintain, and where required to reconstruct, wartime built buildings although these were planned to last only four or five years.

88. The magnitude of the programme can be judged from the estimated carryover of \$351 million on contracts in process at March 31, 1952 of which \$199 million is to be met in 1952-53.

89. Major construction awarded for the three armed services as at February 29, 1952, on which work has begun or will shortly begin totals 459 contracts. This does not include married quarters or engineering consultant contracts.

## PART VII

## DEFENCE APPROPRIATIONS

90. For the Department of National Defence the estimated expenditure for the fiscal year 1952-53 is \$2,001,725,000, an increase of \$392,410,629 over the appropriation made for the present fiscal year. The cost of the three-year programme as first announced will likely exceed the 5 billion dollars estimated. One reason is the higher cost of new and more effective types of equipment. For example, in 1939 our first-line fighter aircraft, the Hurricane, cost approximately \$55,000 and in 1952 the cost of an F-86E jet fighter is approximately \$280,000. In 1939, a destroyer could be purchased for approximately 1½ million dollars and today the cost of the A/S Escort Vessel is in the neighbourhood of \$15 million. In 1945 a medium tank, the M4, cost \$62,000, whereas today the Centurion tank costs approximately \$103,000.

91. An indication of the increased cost can be seen from the following tables:

*Costs of Clothing and Personal Necessaries—*

	<u>1939</u>	<u>1945</u>	<u>1951</u>
R.C.N. Seaman's kit .....	\$165.00	\$155.00	\$329.00
Army O.R. kit .....	82.30	137.17	400.79
R.C.A.F. O.R. kit .....	130.00	210.00	436.00

*Costs of Certain Buildings—*

	<u>1939</u>	<u>1945</u>	<u>1951</u>
Barrack Block			
(250 men) .....	\$254,330	\$350,467	\$592,590
Men's Mess			
(500 men) .....	88,374	121,956	205,912
Hangar			
160' x 220' steel .....	455,000	627,000	1,060,167
Magazine (large)			
with crane .....	27,335	37,667	63,690
W/T Station (Transmitter & Receiver Bldg.) .....	182,716	251,783	425,729

*Mutual Aid Expenses*

92. A substantial addition is proposed to the Mutual Aid Programme. In the Fall of 1950-51, \$300 million was authorized for mutual aid and in 1951-52 an additional \$61,383,108. The estimates seek an additional \$324 million for 1952-53. This covers continuation of the programme of transfers of equipment from existing Army stocks, additional output of aircrew trained for other NATO countries as training capacity is completed, and increased transfers from new production to support Canada's NATO partners in Europe.

*Navy*

93. The estimate for the Royal Canadian Navy is increased by \$32,174,289 over corresponding figures for 1951-52. Personnel costs and

operating expenses are higher by \$13,495,629 due to higher pay rates, increased strength and higher operational costs as the Navy expands. The remainder of the increase is for the expected increase in production of ships and armament.

### *Army*

94. In the case of the Canadian Army, the estimated expenditures for 1952-53 will exceed the 1951-52 appropriation by \$72,294,765. This includes a rise in military personnel costs of \$37,690,000, the principal factors being an increase in personnel strength (mainly due to the formation of the 27th Brigade) and to an increase in pay rates. Costs of operations and maintenance of the Army will increase by \$18,625,065. There is also an increase in construction and equipment costs amounting to \$15,979,700 due to increased deliveries and higher unit costs.

### *Air Force*

95. The estimate for 1952-53 for the Royal Canadian Air Force shows an increase of \$87,478,585 over 1951-52. Personnel costs are up by \$22,842,105 due to higher rates of pay and an increase in personnel strength. Operational costs are up by \$51,584,426 due to generally increased activities with a corresponding increase in flying hours. Increases in the production of equipment and construction account for the remainder of the increase amounting to \$13,052,054.

### *Defence Research*

96. The estimate for 1952-53 for the Defence Research Board shows an increase of \$9,504,072 over 1951-52, to meet the expanded activity of the general defence effort.

### *Construction*

97. The construction programme for the Navy, Army, Air Force and D.R.B. for the fiscal year 1952-53 amounts to \$565,196,531 as compared to \$493,390,935 in the last fiscal year. Of this amount it is expected that \$244,888,085 will be expended during 1952-53.

### *Comparison with Previous Years*

98. A comparison of the total defence expenditure of preceding years with the cash provision for 1952-53 follows. Figures in each case include expenditures made by the Defence Department together with defence expenditures by other government departments.

99. In the fiscal year 1947-48 defence expenditures amounted to roughly \$219 millions; in 1948-49 the sum was \$290 millions; in 1949-50 it was \$411.5 millions; and in 1950-51 \$816.2 millions. Total defence expenditures in 1951-52 are expected to be of the order of \$1,475,000,000. Estimates for 1952-53, including about \$145 millions for defence in other government departments, total about \$2,145,000,000.

100. In 1952-53 there will also be available from the account established for replacement of equipment transferred from existing stocks as mutual aid another \$200,000,000.

101. The appropriations sought are intended to carry out the 1952-53 part of the defence programme as already announced and as indicated in the foregoing pages.

102. That programme includes support of the United Nations action in Korea on the present scale as long as this is required; contributing to the collective strength of the North Atlantic alliance the forces as agreed and announced; making provision in Canada for the Navy, Army and Air Force formations indicated for territorial defence as well as the administrative and training establishments necessary to carry through these arrangements and to provide for the development of our maximum potential as soon as possible in the event of an emergency.

103. The following tables are attached:

- (a) Department of National Defence appropriations and expenditures by major categories.
- (b) Comparison of appropriations and expenditures.
- (c) Distribution of defence dollar.



**DEPARTMENT OF NATIONAL DEFENCE**  
**Table of D. N. D. appropriations and expenditures by major categories**  
(thousands of dollars)

Major Cost Categories	1948-49		1949-50		1950-51		1951-52		1952-53 Estimates
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Estimated Expenditures	
	\$	\$	\$	\$	\$	\$	\$	\$	
Military personnel costs.....	106,668	104,353	141,267	140,495	184,399	184,376	307,204	302,171	385,872
Procurement and production co.ts.....	33,987	27,378	70,600	65,519	317,317	320,121	726,942	586,631	889,961
Construction.....	31,791	24,430	36,732	37,569	84,472	82,205	209,031	164,301	244,883
All other operating Costs.....	103,138	112,644	138,462	141,297	198,697	195,755	366,137	346,897	481,004
Total.....	275,584	268,805	387,061	384,880	784,885	782,457	1,609,314	1,400,000	2,001,725

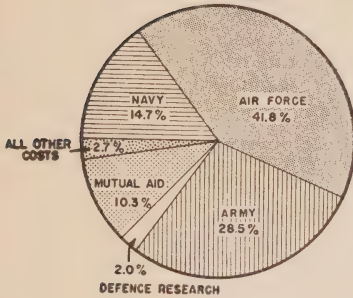
**DEPARTMENT OF NATIONAL DEFENCE**  
**Comparison of appropriations and expenditures**  
(thousands of dollars)

D.N.D. Budgetary Components	1948-49		1949-50		1950-51		1951-52		1952-53
	1948-49		1949-50		1950-51		1951-52		Estimates
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Estimated Expenditures	
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Navy.....	47,313	44,650	73,316	73,400	111,536	99,849	236,051	175,000	268,225
Army.....	101,175	101,823	124,584	135,740	201,381	211,779	459,305	425,000	531,600
Air.....	90,948	90,197	147,614	136,376	229,693	230,553	671,832	590,000	759,310
DRB.....	19,797	16,033	24,314	22,389	24,915	23,415	32,496	32,400	42,000
Administration and others.....	16,351	16,102	17,253	16,975	21,943	21,444	43,665	42,435	49,090
Mutual Aid including Contributions to Replacement Fund and Contributions to Military Costs of NATO					195,417	195,417	165,965	135,075	351,500
Total.....	275,584	268,805	387,061	384,880	784,885	782,457	1,609,314	1,400,000	2,001,725

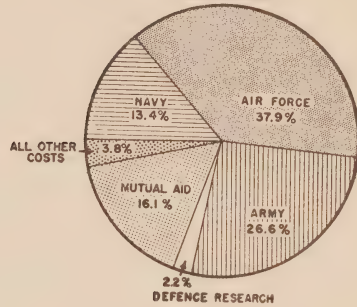
# DISTRIBUTION OF DEFENCE DOLLAR

## BY SERVICES

1951-52

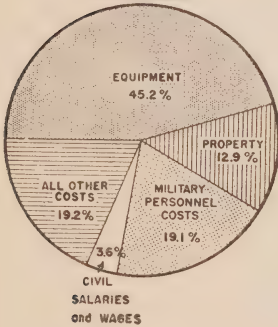


1952-53

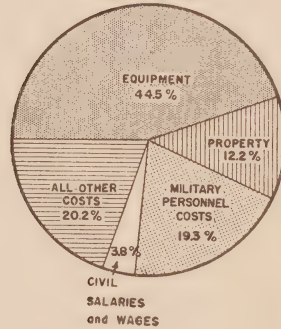


## BY REQUIREMENT

1951-52



1952-53

















*Col Stacey.*

Government  
Publications



# CANADA'S DEFENCE PROGRAMME

1953-54

Revised to March 31, 1953.

**HON. BROOKE CLAXTON**

Minister of National Defence

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
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## PART I

### THE INTERNATIONAL SITUATION

1. The past year has brought the continued build up of the forces available to prevent aggression in accordance with the provisions of the North Atlantic Treaty. The Canadian programme announced by the Minister of National Defence on February 5, 1951, has already run for two out of the three years planned. The amount sought in the appropriations for the fiscal year 1953-54 is designed to meet our commitments for the period.

2. Over the last two years, and particularly over recent months, the programme has been subject to a searching review and this has brought about some modifications to give effect to the combined experience of the United Nations in Korea and of the North Atlantic nations in building up their forces in Europe. There has also been a substantial increase in the emphasis on the defence of North America against air attack.

3. The expansion and acceleration of the defence programme of Canada and the other nations started before the announcement of the programme above referred to. Less than three years have passed since war broke out in Korea, in June, 1950, or since October of the same year, when plans were first agreed to for the build up of NATO. Since the outbreak of hostilities in Korea the total strength of the Canadian active forces has increased from 47,000 to over 104,000. Even more significant than this over-all increase has been the increase in the number of major combat units in all three services. In the Army, for example, the increase was from six to twenty-six major units. All three services have shown major increases in the forces in being, trained and equipped.

4. The Royal Canadian Navy has carried on active operations in Korean waters and has participated in numerous exercises as part of the North Atlantic forces.

5. The Canadian Army has maintained the 25th and 27th Canadian Infantry Brigades in Korea and in Germany, and at the same time has had trained or training in Canada more than matching forces to provide for the defence of this country and to replace those serving abroad.

6. Nine out of the twelve squadrons of Sabre fighters for NATO are already abroad. A large part of the work of construction of additional operational buildings and accommodation has been completed. Stocks of equipment have been substantially increased and productive capacity greatly enlarged.

7. During the two years the defence strength of Canada, actual and potential, has increased far more than is indicated merely by the increase in numbers of men.

8. Canada, like the other free nations, has been faced with the tasks of fighting the "cold war" and at the same time of building up her strength, first to deter aggression and second to resist aggression should it begin.

9. Operations to meet the two objectives must be regarded as two aspects of a single integrated defence activity.

10. If the possibility of another world war resulting from Communist aggression appears to have receded to some extent in the past year, this is due in part to the growing strength and ability of the free nations to preserve peace.

11. This growth in strength furnishes no reason for complacency but should be rather an incentive to press on along the course which has already contributed to our having had three years without a major war. During this time the Communists have continued outright aggression in Korea and hostilities in Indo-China, Malaya and Burma. The Middle East is still fraught with uncertainty and Communist currents continue to underlie the difficulties of Europe.

12. The free nations must sincerely welcome and realistically follow up every opening to a settlement of outstanding difficulties and provide a firm basis for an enduring peace, but at the same time they must neither allow themselves to be lulled into a false sense of security nor ruin their economies by trying to do more than they are capable of doing. "If, today, all the guns on all the fronts when East is fighting West were to be silenced, our side would still be far from achieving the unity, the economic and armed strength essential to our safety."<sup>1</sup> To continue to build up the strength which events have proved necessary is the challenge of our generation, and it is a challenge to Canada as well as to other nations of the free world.

(<sup>1</sup>) The Financial Post, April 4, 1953.

## PART II

### CANADA'S DEFENCE OBJECTIVES

13. The objectives of our defence policy remain the same as heretofore:

- (1) The immediate defence of Canada and North America from direct attack;
- (2) implementation of any undertakings made by Canada under the Charter of the United Nations, or under the North Atlantic Treaty Organization, or other agreement for collective security;
- (3) the organization to build up strength in a total war.

#### First Objective: Defence Against Direct Attack

14. In the event of an all-out war the most probable method of attack upon the North American Continent would be by air. The possibility of such an attack will increase as further progress is made in the design and production of new aircraft and the increasing stockpile of atomic weapons estimated to be held by the U.S.S.R. Preparation of defence against this type of attack is of great and increasing importance but defence preparedness of this kind must be integrated with all other defence activities, so that whether it be at home or abroad, each activity is an element integrated in the total sum of our national defence.

#### *Air Force*

15. The joint Canadian-U.S. network of radar stations to provide early warning, and communications facilities to direct squadrons of fighters, has made considerable progress in the last year.

16. To the temporary mobile facilities which have been in use since the Second World War, we are steadily adding new radar installations of the most modern and powerful types. Several of these installations which are of primary usefulness in the defence of the U.S. have been manned by U.S. personnel.

17. The first units of the Ground Observer Corps have been formed to supplement the radar net. This corps will be largely civilian and its object is to help identify and report on low-flying aircraft.

18. Regular and reserve fighter squadrons, the backbone of the air defence network, are being built up. The first regular squadron, equipped with CF-100 all-weather, twin-engine, jet fighters, was recently formed and by the end of the fiscal year a number of these squadrons will be operating. Meanwhile, a number of squadrons of F-86E Sabres, destined as part of Canada's NATO air contribution have been in Canada available for the defence of this continent. As the last of these are sent to Europe during the year, their places will be taken by squadrons of CF-100's. Reserve squadrons now equipped with Vampires and Mustangs will be re-equipped with CF-100's as these become available.



19. A joint Canadian-U.S. continental air defence exercise, "Signpost", took place during July 1952. Bombers of the U.S. Strategic Air Command simulated aggressors and were tracked by Canadian and U.S. radar posts and ground observers. These were intercepted by Canadian fighter squadrons, some of them manned by reserve pilots on active summer training. In all approximately 200 Canadian aircraft took part.

### *Army*

20. The Mobile Striking Force is maintained for defence against surprise airborne attack and includes in addition to the infantry units, airborne units of artillery, engineers, army service corps, signals, medicals, etc. As a result of the rotation policy for the 25th Brigade, Korean veterans have been trained as parachutists, and now form part of this force. To provide additional and sufficient airlift, a number of Bristol freighters and C119 aircraft are being obtained, some of which have been received, the others currently being delivered at the rate of several a month. Exercises providing training in winter warfare and airborne operations such as Exercise "Bulldog" at Norman Wells, are held regularly. New equipment for anti-aircraft defence is being procured, some of which has already been received. Anti-aircraft guns of the latest conventional type are being modified to give maximum performance against jet aircraft which fly higher and faster.

### *Navy*

21. The coastal defence organization of the Royal Canadian Navy is designed to ensure the security of Canadian coastal waters. Further progress is being made with the installation of seaward defences of ports. The programme of modernizing Second World War escort vessels should be complete by the end of 1953. New construction is continuing and the first new escorts are expected to be commissioned in 1954.

## **Second Objective: United Nations and NATO**

### **(a) United Nations**

22. To the end of March 1953 thirty-three months have passed since the outbreak of the Korean war. The military situation in Korea continues to demand that Canada assist the United Nations to halt aggression in that country.

23. Three Canadian destroyers have at all times been in Korean waters since July 1950. In all, eight different R.C.N. destroyers have taken part in this operation, steaming 720,000 miles. The H.M.C.S. "Athabaskan" is now on its third tour of duty and several have completed two tours.

24. No. 426 R.C.A.F. Squadron and Canadian Pacific Airlines aircraft under charter to the government between July 29, 1950, and March 31, 1953, made over 900 return Pacific crossings. These fine aircraft and



crews have travelled a total of twelve million miles without loss or injury. Of these crossings No. 426 R.C.A.F. Squadron made 484, totalling 28,400 hours' flying time and 6,260,000 miles.

25. The 25th Canadian Infantry Brigade Group has been continuously in Korea as part of the First (Commonwealth) Division, United Nations Forces. The Brigade Group has been maintained at strength with all necessary supporting units and comprises the third largest contribution to the U.N. Command from outside Korea. The first rotation of all units in the 25th Brigade has been completed and the second rotation is now under way. On January 30, 1953, the First (Commonwealth) Division, including the Canadian Infantry Brigade Group, was placed in Corps Reserve and the formation remained out of the front line until April 8, 1953. During this period, the Brigade concentrated on combat training at the sub-unit and unit level.

26. All three services have gained valuable operational and combat experience. Up to March 31, 1953, 3,498 officers and men of the Royal Canadian Navy, 19,514 of the Army and 796 of the Air Force, a total of 23,808, had seen service in the Far East. Many Navy and Army personnel have served more than once in this theatre so that total man-tours for the Navy were 4,075, and for the Army, 19,884. Operations in the Korean theatre in which these personnel took part involved supply, transportation and replacement problems more complex than in the Second World War. This has afforded Canada an opportunity to test administrative and training methods as well as clothing, equipment and weapons of the three services.

27. Returned veterans are available for instructional duties and also constitute an additional reserve of battle-experienced men in the event of an emergency.

28. As at March 28, 1953, there were a total of 232 orders, decorations and medals awarded officers and men of the Canadian forces for gallantry or outstanding service in the Far East.

29. The casualties in the Korean theatre as at March 31, 1953, were 1,391 officers and men in the Army, twenty officers and men in the Navy, and one airman. These totals include those who have been killed in action, officially presumed dead, and died of wounds, those injured and wounded in action and those who are missing and prisoners of war.

#### **(b) North Atlantic Treaty**

30. At the North Atlantic Treaty Organization meeting in Paris from December 15 to 18, 1952, the fourteen nations, "re-affirmed the purpose of the alliance as being for defence, for peace and for security, and their resolve to extend the scope of their joint action and collectively to preserve their common heritage of freedom."<sup>(1)</sup>

31. For the first time the ministers had an opportunity to observe the International Secretariat at work. Under the guidance of its permanent Secretary-General, Lord Ismay, and situated in Paris, the Secretariat has functioned continuously since created at the Ministerial Council meeting in Lisbon in February, 1952.

<sup>(1)</sup> Official Press Release.

32. The most important item of business was the Annual Review for 1952 of the defence effort of the member countries. This annual review has been instituted to appraise defence programmes and objectives in relation to the economic and political capabilities of each nation. The Council assessed the military position at the end of 1952 and expressed satisfaction that substantial success in providing the increase of forces agreed to at Lisbon had been attained. Plans were formulated for 1953 to make further individual and collective efforts to increase, improve and strengthen the forces forming part of the integrated force.

33. The Council also noted the progress being made in the co-ordination of production of defence equipment and directed that further study be given to this and to further standardization in this field.

34. A report prepared by the Military Committee indicated that considerable progress had been achieved in the training and effectiveness of the various national forces assigned to the Supreme Commanders. Improvement in co-operation between units and at staff level was evident from combined land, air and sea manoeuvres.

35. An important decision arrived at was to set up a unified naval command for the Mediterranean and the subsequent appointment of Earl Mountbatten as Commander-in-Chief Naval Forces Mediterranean. This is a unified command subordinate to the Supreme Allied Commander Europe. An outline of NATO command organization in Europe and the Mediterranean follows this section on NATO.

36. Foreign policy topics of common concern together with non-military questions such as economic, social and cultural co-operation also received consideration.

### *Units for NATO*

#### **NAVY**

37. The Atlantic Command has been established under Admiral McCormick (SACLANT) with headquarters at Norfolk, Virginia.

38. Royal Canadian Navy ships are now available to protect the sea lanes and coastal waters of the Atlantic and participated in three NATO exercises during 1952. From June 17 to 26, HMCS "Magnificent" participated in an exercise in trade protection called "Castinets" which took place in United Kingdom waters.

39. Both HMCS "Magnificent" and HMCS "Quebec" played important roles in exercise "Mainbrace" an amphibious operation in Denmark. Returning from this operation units of the Canadian and United States navies carried out exercise "Emigrant" concerned specifically with trade protection.

40. During 1953-54, the Navy is to have fifty-six ships in commission not including various small auxiliaries. A total of forty-two of these ships will be fighting units committed to NATO or required for the

defence of coastal waters, whilst the remainder will be used for training, logistic support, and other miscellaneous duties. With the addition of the ships in reserve, which would be available in an emergency, the size of the Navy will have reached over 100 ships.

#### ARMY

41. Since November, 1951, the 27th Canadian Infantry Brigade Group has been maintained in Germany fulfilling Canada's commitment to the armies of the NATO Integrated Force in Europe. The brigade has been organized into three battalion combat teams with armoured and artillery support units. The armoured units are equipped with Centurion tanks.

42. The rotation of 1,913 married personnel of this Brigade Group was completed in November and December of 1952. Single personnel will return to Canada under a similar plan after having completed two years service overseas.

43. During September, 1952, the 27th Canadian Infantry Brigade Group participated in an exercise of two weeks duration, conducted by the NATO Northern Group of Armies and designed to test NATO defences in Europe.

#### AIR FORCE

44. By the end of 1953 the Canadian air contribution to NATO will be complete with an air division of four wings comprising 12 squadrons of F86E Sabre aircraft. Substantial progress towards this end has already been made. One wing is at present stationed at North Luffenham in England and will be transferred to the Continent when accommodation is available. The second wing in an unprecedented operation flew to its base at Gros Tenquin in October, 1952. The third wing, in a similar operation, will arrive at Zweibrucken in April of 1953 and will be followed by the fourth before the end of the calendar year.

45. The air division will be a complete organization forming part of the 4th Allied Tactical Air Force. Temporary headquarters for the Canadian Air Division has been at Paris and will be until the permanent headquarters at Metz are ready for occupation. This should be in June, 1953. The Air Materiel Base has been established at Langar, England.

46. The construction of the base at Gros Tenquin in four months was achieved in consequence of the close and friendly co-operation of French authorities. The airfield at Zweibrucken is ready to receive the third wing when it arrives and the station at Sollingen (Baden-Baden) will be available when the fourth Canadian fighter wing comes over. These two stations in Germany were completed in a little over twelve months. They are well constructed and located. Work has been commenced on the fourth airfield at Marville in France. The wing at North Luffenham will move to that field when it is ready.

47. During 1952 Maritime Squadrons of the RCAF participated in three large NATO exercises with United States and European forces.



### *Training for NATO*

48. In addition to training pilots and navigators for other NATO countries, Canada has undertaken to train radar observers. This does not increase Canada's commitment to train up to 1,400 aircrew per year. Radar observers will be allotted spaces in the plan previously designated for navigator trainees. To March 31, 1953, 748 pilots and 947 navigators from the United Kingdom, France, Italy, Belgium, Norway, Denmark and the Netherlands had been trained in Canada and another 1,200 were undergoing training. For the first time aircrew trainees from Portugal are participating in radar observer training.

### *Equipment for NATO*

49. To date, armament and ammunition, aircraft, engines, trainers and military transport vehicles from existing stocks, walkie-talkie wireless sets, 155 mm. howitzers, No. 4 Mark VI radar sets, explosives and mine-sweepers from new production, have been offered to NATO countries. Nine of the thirteen other NATO nations have already received deliveries of this equipment and this will continue during the coming fiscal year.

50. In the two previous fiscal years, equipment transferred to NATO countries was mainly from existing stocks. In 1953-54, however, mutual aid deliveries will largely consist of equipment in current production for the Canadian forces.

51. While deliveries of this equipment will strengthen the forces of our allies and thereby add to the total defence, its production will also have the advantage of increasing the size of orders placed with Canadian factories so as to result in lower unit costs. It will also enlarge Canadian productive capacity, and increase our state of industrial preparedness.

52. During 1952-53, in addition to meeting its own requirements, Canada was able to sell a number of F86E Sabre aircraft to the United States for successful operation in Korea. Mr. Robert Lovett, United States, Secretary of Defence, reported that the new F86E aircraft have earned a combat ratio of 9 to 1 over the MIG 15 in Korea. Months in advance of the dates originally set, deliveries were commenced on the transfer of three to four hundred Sabre fighters to the United Kingdom, a mutual aid contribution by Canada of about 70 per cent of the total cost of these aircraft. The balance of some 30 per cent of the cost, being government furnished components is supplied by the United States.

### *Contributions to the Military Costs of NATO*

53. Under arrangements agreed upon by the North Atlantic Council, certain projects which by their nature cannot be considered to be primarily the responsibility of any one nation to provide, have been undertaken as joint projects known as "Common Infrastructure". The costs of such facilities which include airfields, signals, headquarters, etc., are shared by the parties in NATO.



54. This common infrastructure fund will meet the cost of the operational elements of the airfields in France which have been allotted to Canada for use by the RCAF. The operational elements consist of runways, taxi strips, hangars, operational buildings and communications, built to standards laid down by NATO.

55. The financing of airfields in western Germany has been undertaken as part of the contribution of the Federal Republic of Germany to western defence, as have the facilities for use of the 27th Canadian Infantry Brigade Group.

56. The financial implications of the appropriations for Mutual Aid and the military costs of NATO are dealt with under Part IX, Defence Appropriations.

### *Standardization*

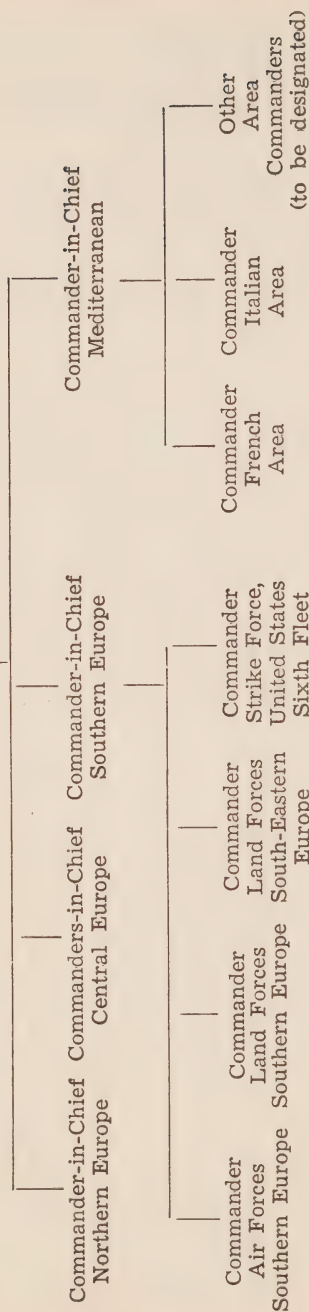
57. A general standardization programme was initiated in 1950 under the North Atlantic Treaty Organization to contribute to the more effective operation of integrated allied forces.

58. The programme is designed to achieve maximum adaptability and economy in the use of national defence resources and is concerned with equipment and operational and logistical procedures.

59. Some progress has been made in all fields. The development of standard equipment, however, for use throughout all NATO countries has presented the greatest problem due to national preferences and differing industrial standards as well as the impossibility of scrapping existing stocks.

# OUTLINE OF NATO COMMAND ORGANIZATION IN EUROPE AND THE MEDITERRANEAN

## Supreme Allied Command Europe



**Notes:** (1) The organization of the area commands under the Commander-in-Chief, Mediterranean, still remains to be worked out.

(2) The co-ordination of the movements of the Strike Force with those of other forces operating in the area will be exercised on behalf of the Supreme Allied Commander, Europe, by the Commander-in-Chief, Mediterranean.

(3) The Commander-in-Chief, Mediterranean, is under the Supreme Allied Commander, Europe, in the NATO Command Organization. He is, however, still responsible to the British Chiefs of Staff for his other commitments, e.g., the support of the Middle East.

### Arrangements Made for Canadian Troops Abroad

60. Facilities have had to be obtained in each country in which the RCN, the Canadian Army and RCAF have to operate. Arrangements have been made or are being negotiated covering the accommodation, supply and status of the three services in six different countries as far apart as 12,000 miles.

#### *Korea*

61. The legal status of the U.N. forces in Korea is determined by international law and by working arrangements. The Canadian forces are supplied with Canadian items from Canadian sources but common items are obtained through Commonwealth and United States supply lines on a repayment basis.

62. Buildings and installations outside the combat zone necessary for accommodation and operations are requisitioned through an agency of the Commonwealth Division. Costs for maintenance of these structures are charged to the Korean Operations Pool Account by means of which the Commonwealth costs of the Korean hostilities are distributed among Commonwealth countries.

#### *Japan*

63. Since the Japanese Peace Treaty came into force on April 28, 1952, negotiations have been under way with the Japanese for an agreement which will give U.N. Forces in Japan a formal legal status.

64. In Japan the Navy has base facilities at Sasebo and Kure, the Army has camp and training facilities at Kure for the re-enforcement and administrative units of the 25th Canadian Infantry Brigade Group and base facilities at Tokyo are used by the RCAF.

65. Logistic support is the same as that for Canadian forces in Korea.

#### *United Kingdom*

66. The legal status of Canadian Forces in the United Kingdom is defined by the Visiting Forces (British Commonwealth) Act, 1933. This United Kingdom act will be replaced by another act, the Visiting Forces Act, 1952, awaiting proclamation. The new act will formally implement the provision of the NATO Status of Forces Agreement entered into by Canada and the other NATO nations at London on June 19, 1951. In the meantime administrative effect is being given to the Agreement as far as possible.

67. Accommodation for the Fighter Wing in North Luffenham was available on arrival and Canada is paying for its maintenance. Suitable accommodation is being constructed at Langar under British supervision at Canadian expense.

68. The RCAF at North Luffenham and at Langar is supplied from Canadian sources, with the exception of rations which are supplied by

the USAF, and maintenance and operating items such as petrol, oil and lubricants which are supplied by the United Kingdom. Supplies received from the United States and the United Kingdom are on a repayment basis.

### *France*

69. The legal status of Canadian Forces in France, which at the present time consists of the RCAF Fighter Wing at Gros Tenquin, and the temporary headquarters of the Air Division at Paris, will be covered by the NATO Status of Forces Agreement.

70. Though France has ratified the NATO Status of Forces Agreement the agreement has not yet come into force. Until such time as it does come into force, administrative effect is being given to its provisions so far as is permitted by existing French law.

71. Arrangements for the accommodation and other facilities are financed in part out of "infrastructure" and in part by Canada. This is dealt with under Part IX, Defence Appropriations.

72. No. 2 Fighter Wing is mainly supplied from Canadian sources with the exception of ammunition, petrol, oil and lubricants and rations which are obtained from USAF sources on a repayment basis and some supplies purchased locally.

### *Germany*

73. By virtue of Law 69 of the Allied High Commission the Canadian Forces in Germany enjoy the same status and privileges as the forces of the occupying powers—the United Kingdom, France and the United States. Canadian forces are not, however, in Germany in the capacity of occupation forces but are there as part of the defence forces of the North Atlantic Treaty Organization. When the occupation period comes to an end the status of the forces stationed in Germany will be under the general provisions of the conventions between the three occupying powers and the Federal German Republic signed at Bonn on May 25, 1952. Negotiations are under way to provide further for the Canadian forces.

74. Members of the 27th Canadian Infantry Brigade Group have been housed in permanent military barracks provided at Hanover through the British Army of the Rhine, except when engaged in training manoeuvres. A new camp is under construction at Soest, half way between Hanover and Cologne. The capital cost is met by the Federal Republic of Germany. Maintenance will be paid for by Canada.

75. Canadian troops in Germany are generally supplied through the British supply line on a repayment basis.

### *Belgium*

76. To provide a base and a line of communication for the 27th Brigade stationed in Germany, arrangements are being made with the



Belgian government for the stationing of administrative units at Antwerp. The status of these forces is governed by the provisions of the NATO Status of Forces Agreement which, though not yet ratified by Belgium, is being given effect.

### **Third Objective: Developing Maximum Strength**

#### *Navy*

77. In the Naval reserve, training facilities at local Reserve Divisions enable personnel to undertake basic training and elementary specialist courses, each Division being equipped to train its members for a particular branch. Since March of 1948 the strength of the R.C.N. reserve has increased by over 3,000 to a total of approximately 5,300 at March 31, 1953.

#### *Army*

78. The Canadian Army Reserve Force has increased by 13,281 since March 1948 to a total strength of 46,872 at March 31, 1953. During 1951 and 1952 approximately 6,400 members of the Reserve joined the Active Force. During 1952 approximately 14,000 took summer training as compared with 11,000 in 1951. Equipment used for Reserve Force training purposes has been pooled by the general officers commanding and is allotted from the pool to Reserve units. This arrangement permits a reduction in the amount of equipment on charge, in maintenance costs and in the need for storage space. Equipment withdrawn has been replaced in sufficient quantities by more modern types.

#### *R.C.A.F.*

79. The strength of the R.C.A.F. Auxiliary as at March 31, 1953, stands at 5,874 officers and men. They are members of fighter and fighter bomber squadrons forming part of the air defence organization. They also include members of radar and other ground crew and technical units. Reserve units from all parts of Canada participated in exercise "Signpost".

80. In the Primary Reserve an additional 1,088 aircrew and ground-crew officers are given annual training designed to facilitate their speedy assumption of assigned roles in the Active Force upon mobilization.

81. The Reserve Tradesmen Training Plan (Basic) has been introduced to produce more and better trained R.C.A.F. Reserve tradesmen. Evening and summer training will be taken in 1953 by 2,250 members of the Air Cadet League, high school students and members of the R.C.A.F. Auxiliary. These trainees, taken on the strength of the Primary Reserve, may transfer to the Auxiliary or Supplementary Reserve on completion or remain in the Primary Reserve for further training.

82. Approximately 11,000 former reserve forces personnel of the three services have joined the active forces since the outbreak of hostilities in Korea.

## PART III

## MANPOWER

83. At March 31, 1953, there were 104,427 men and women in the active forces of the three services, an increase of over 121 per cent since the beginning of the war in Korea, or July 1, 1950.

84. The following table gives the recruiting and wastage rates for fiscal years 1951-52 and 1952-53:

	<u>Navy</u>	<u>Army</u>	<u>Air Force</u>	<u>Total</u>
<b>Strength</b>				
March 31, 1951 .....	11,082	34,986	22,359	68,427
<hr/>				
1951-52				
Enrolments .....	3,834	22,385	12,651	38,870
Wastage .....	1,411	8,093	2,399	11,903
	<hr/>	<hr/>	<hr/>	<hr/>
Net Increase .....	2,423	14,292	10,252	26,967
<hr/>				
<b>Strength</b>				
March 31, 1952 .....	13,505	49,278	32,611	95,394
<hr/>				
1952-53				
Enrolments .....	3,662	10,204	11,825	25,691
Wastage .....	1,621	11,024	4,013	16,658
	<hr/>	<hr/>	<hr/>	<hr/>
Net Increase .....	2,041	820 <sup>(1)</sup>	7,812	9,033
<hr/>				
<b>Strength</b>				
March 31, 1953 .....	15,546	48,458	40,423	104,427

<sup>(1)</sup> Decrease

## Employment of Active Forces

*Navy*

Units for NATO, Korean force and defence of coastal waters ..	5,400	
Training staffs and trainees .....	5,500	
Commands and administration .....	1,400	
Dockyards and bases .....	3,200	15,500

*Army*

Units for NATO, Korean force and defence of Canada .....	26,900	
Training staffs and trainees .....	6,400	
Commands and administration .....	2,800	
Service units .....	12,400	48,500

*Air Force*

Units for NATO, Far Eastern airlift and defence of Canada ..	11,800	
Air transport, search and rescue .....	3,300	
Training staffs and trainees .....	18,600	
Commands and administration .....	1,900	
Service units .....	4,800	40,400

Total ..... 104,400

### *Women*

85. The R.C.A.F. has continued to recruit women for the regular force for clerical, stenographic, radar, telecommunication and other duties. Except for nursing and other allied services, the Navy and Army continue to recruit women for the reserve force only

86. As at March 31, 1953, there were 3,499 women in the regular forces of the three services and 2,758 in the reserve forces.

### *Civilian Employees*

87. Classified civilian personnel and employees of the Defence Research Board of a similar classification employed by the Department of National Defence as at March 31, 1953, totalled 25,467, an increase of 4,937 since March 1952. The increase has largely resulted from filling established positions which were vacant at March 31, 1952. Included in this figure of 4,937 are 698 additional appointments in the Inspection Services to cope with increased production.

88. In addition, 19,295 prevailing rate employees were employed in dockyards, camps, depots, air stations and on construction projects, as at March 31, 1953.

### **Officer Production**

89. During the past year the methods of qualifying officers for the active components of the three services have been augmented by the opening of a new Canadian Services College and the introduction of the Regular Officer Training Plan (ROTP).

### *Collège Militaire Royal de Saint-Jean*

90. In addition to the two Services Colleges, Royal Military College and Royal Roads already operating Collège Militaire Royal de Saint-Jean, was opened at Saint-Jean, Quebec, in September, 1952. In its first year the college accepted 125 cadets, seventy-six of whom are of French-speaking origin. As a result of the success of the initial year, provision will be made for a total strength of 400 cadets.

91. To enter the college cadets must have junior matriculation or its equivalent, as well as the other necessary qualifications. Upon completion of the three-year course and summer training, some cadets will be commissioned in non-technical branches and the remainder will complete their final two years at Royal Military College.

### *ROTP*

92. During the year the provisions for training officers were further extended by the establishment of the Regular Officer Training Plan (ROTP) both in the three Canadian Services Colleges and at universities which possess a University Naval Training Division, a contingent of the Canadian Officers Training Corps or a Reserve University Squadron. Students in attendance at one of the Services Colleges or at a university

are eligible if they meet service enrolment standards and agree to serve for at least three years after they qualify for a commission in the regular Navy, Army or Air Force.

93. Under these arrangements applicants having the required qualifications enrol in the service of their choice as a subordinate officer. They receive free tuition, books, instruments, uniform clothing, subsistence allowance where applicable and during the first academic year \$30 a month. In addition they receive \$170 a month while undergoing summer training.

94. An outline follows of the various methods of qualifying officers:

#### *All Services*

1. The Regular Officers Training Plan through Royal Military College, Royal Roads, Collège Militaire Royal de Saint-Jean and most Canadian universities as set forth above.
2. Subsidization for the last two years for medical and dental students who agree to serve for five years after graduation.
3. University Training Plans for Reserves, i.e., UNTD, COTC and RUS which also qualify students for the regular forces upon graduation.
4. Candidates from the ranks are eligible to attend the Canadian Services College or proceed under a university plan. All other ranks are examined with a view to selection for a commission.

#### *Navy*

1. Three-year short service appointments in the regular force are available to officers of the reserve Navy.
2. Five-year short service appointments for aviation duties are available to applicants who have had previous air crew experience. To be eligible the candidate must be a commissioned officer of the R.C.N.(R) or an ex-officer of the Royal Canadian Navy or of a navy of the British Commonwealth or of the R.C.A.F. and must have attained "wings" standard.
3. Seven-year short service appointments for aviation duties are available to men of the R.C.N., the R.C.N.(R) or other young men direct from shore. To be eligible a candidate must be unmarried, over 18 years and not have reached his 23rd birthday (in the case of a serving candidate, his 24th birthday) by the first of January of the year of selection.

#### *Army*

1. Short service commissions are open to active force men in the ranks who have reached trained soldier standard and who have junior matriculation or equivalent and are promoted to officer cadets and trained at corps schools. From May, 1951 to September, 1952, this plan was offered to junior matriculants direct from civilian life. This latter phase was an emergency measure which provided 237 officers mostly for the non-technical corps.
2. Commissions as classified officers are offered to Senior Warrant Officers and NCOs who are suited to fill certain specified vacancies.
3. Veteran officers under 37 years of age are eligible to apply for enrolment as regular officers and in certain instances, some over 37 years have been accepted as short-service officers.

#### *Air Force*

1. Aircrew candidates between the ages of 17 and 24 inclusive who have junior matriculation and the other required qualifications are accepted for training with the rank of Flight Cadet, and are later eligible for regular commissions in competition with other short service applicants.



2. Aircrew candidates with university degrees who meet all other qualifications and are between the ages of 17 and 24 inclusive are accepted for training with the rank of Flight Cadet and are given regular commissions.
3. Aircrew and groundcrew veterans under 35 years of age are eligible for short service and regular commissions to fill certain vacancies for which they are qualified.
4. Other ranks with at least 10 years' experience, holding the rank of Flight Sergeant and above, who have held the highest grouping in their trade are eligible for promotion to commissioned rank.
5. Candidates under 30 years of age who possess a university degree or equivalent are eligible for commission for non-flying duties.

#### Officer Candidates in Training at March 31, 1953

Canadian Services Colleges	R.C.N.	Army	R.C.A.F.	Total
ROTP .....	68	123	144	335
Reserve Cadets .....	56		81	137
COTC .....		175		175
Other .....	3		7	10
Universities				
ROTP .....	34	89	93	216
UNTD, COTC, RUS .....	1,429	1,811	1,089	4,329
Other .....	47	118	92	257
Other Plans .....		1,780	881	2,661
Total .....	1,637	4,096	2,387	8,120

**Note:** "other plans" comprise command contingents of COTC in the Army and Flight Cadet aircrew trainees in the RCAF.

#### Active and Reserve Units and Establishments

##### Navy

95. At March 31, 1953, forty-two regular navy major shore units or establishments were in operation in Canada. In addition to Naval Headquarters these include Flag Officers on both the East and West coasts, dockyards, manning depots, training units, supply depots, armament depots and radio stations. The Royal Canadian Navy (Reserve) has twenty-two naval divisions.

##### Army

96. By March 31, 1953, the Canadian Army had 420 active units in Canada and abroad. Of this number, thirty-five units were on active service in the Far East, thirty-two units were stationed in Europe and 353 units were in operation in Canada. In addition to the above, the Reserve Force and Supplementary Reserve of the Canadian Army consisted of 625 units.

##### R.C.A.F.

97. At March 31, 1953, the R.C.A.F. operated 108 regular major formations and units, including wings, stations, squadrons, flying schools,

ground and operational training units, supply depots and radar units. In addition there were eighty-three smaller regular units such as security and recruiting units and seventy-eight reserve units.

98. The three services also have staffs on six joint services or tri-services establishments and at the Joint Staffs in Washington and London.

99. One or more reserve elements of the three services are represented at thirty-seven universities and colleges across Canada. The University Naval Training Division (UNTD) is represented at twenty-five, the Canadian Officers Training Corps (COTC) at thirty and the Reserve University Squadrons (RUS) at thirty-five universities and colleges.

## PART IV

## TRAINING

100. Modern warfare demands a constantly growing proportion of officers and men with special technical qualifications. It is not possible to enlist sufficient personnel with full technical qualifications, and even when they are available, additional training is necessary to develop special skills for military purposes.

*Navy*

101. During 1952-53 the strength of the R.C.N. was increased by 306 officers and 1,735 men. The cruiser H.M.C.S. "Quebec" was commissioned for training purposes. A new training establishment, H.M.C.S. "D'Iberville", for French-speaking new entries was commissioned at Quebec and an additional reserve division, H.M.C.S. "Caribou" was commissioned at Corner Brook, Newfoundland. H.M.C.S. "Cape Breton" was commissioned as a Technical Apprenticeship Training School. Altogether the R.C.N. now operates a total of five training establishments for the regular forces.

*Army*

102. The Army has continued to train replacements for the Brigade in action in Korea and has maintained the Brigade in Europe in a state of operational readiness. This has necessitated the training of an average intake of about 700 recruits per month and the maintenance of large training camps.

103. The increase in the size of the Canadian Army, together with the need to provide in Canada for training to the standard of full battle fitness, has made it necessary to have an area large enough to train major formations using modern weapons with longer ranges and larger safety areas.

104. On August 1, 1952, it was announced that a training area suitable for both winter and summer operations had been chosen in an area northwest of Saint John, New Brunswick. The new training camp will be situated in the two counties of Queens and Sunbury and will be known as Camp Gagetown.

105. The determining factors governing the decision to establish the training camp in this area were the following:

- (1) The ground is tactically suitable, resembling that found in part of northwest Europe and permitting the use of tracked and wheeled vehicles over a considerable portion. It offers a great variety of topography ranging from the mountainous region in the south through the rolling area in the centre to the flat lands in the north.

- (2) The climate allows field training in all seasons.
- (3) The area is served by good communications and is well located for the concentration of troops prior to movement abroad.
- (4) The area is relatively sparsely populated.

106. This new training area measures some 440 square miles and it is estimated that it will take between two and three years to complete accommodation for training in winter as well as in summer.

107. It is expected that the permanent camp population, including civilian employees, will approximate 4,500 with many more using it during periods of training.

108. Following a thorough investigation of all factors governing the selection of a suitable site for the construction of camp accommodation and facilities, a decision was made to locate the permanent installation at the northwest extremity of the training area in the vicinity of the town of Oromocto. This site was recommended by both Army personnel and a group of independent engineers engaged to report on the suitability of various sites under survey.

109. The development will proceed progressively in planned stages and residents will be given reasonable time to relocate themselves elsewhere.

110. An apprentice training programme was commenced in January 1953 to train soldier-apprentices in specific trades. The plan calls for the enrolment and training of a limited number of apprentice-soldiers who have reached the age of sixteen years. In addition to their technical training they will receive academic instruction and general military training. The first intake of 120 apprentices is now in training at corps schools throughout Canada. The next intake is planned for August 1953 and annually thereafter at the end of each school year.

111. Enrolment is for a period of seven years with the option of release after a five-year term of service. Soldier apprentices are paid \$44 a month until the age of seventeen when they receive the pay of a serving soldier, with of course, subsistence, accommodation, clothing, medical and dental services, etc., included.

112. Unit and formation training was carried on to prepare troops for their roles overseas and for the defence of Canada. Sub-arctic exercises were held in June 1952, with further exercises planned during 1953.

#### *Air Force*

113. During 1953-54, the R.C.A.F. will complete the build-up of its training programme to the target set two years ago.

114. A course in supervisor training for corporals and above has been designed to produce junior N.C.Os. well qualified in administration and personnel management. The mobile training unit programme for familiarizing air and ground crew with the new complex aircraft will be continued. Particular attention will be given to special R.C.A.F. auxiliary training preparatory to the re-equipping of squadrons with latest types of aircraft.



## PART V

## CONDITIONS OF SERVICE

*Married Quarters*

115. At March 31, 1953, 13,150 permanent married quarters were completed, an increase of approximately 4,450 since March 1952. In addition, 1,944 are under construction or contract and it is planned to have a further 951 contracted for up to the end of 1953-54, thus making a total of 16,035 permanent married quarters. The above total of 16,035 plus 362 permanent married quarters unallotted by Treasury Board and over 2,600 temporary and emergency married quarters still being used, will give a total of approximately 19,000 married quarters.

116. A number of permanent married quarters are being built on a new design to provide for speedy conversion to barracks for accommodation of servicemen in an emergency.

*Education of Dependents*

117. The Department of National Defence now operates forty-three schools in centres where civilian facilities are not available. These schools employ 406 civilian teachers and are attended by approximately 10,343 children of service personnel. In all provinces service schools are operated to provincial standards and in accordance with arrangements worked out with provincial authorities.

*Transportation of Dependents*

118. In future, provision will be made for the cost of transportation of dependents of members of Canada's armed forces to Europe, where the man is posted to that theatre for a period of two years or more, providing the man is able to find suitable accommodation for his family in the area where he is serving.

*Clothing*

119. The Air Force and the Army will introduce a credit clothing allowance system on April 1, 1953, similar to that presently provided the naval regular force. Under the new plan, men of the regular forces and reserves on continuous duty, below the rank of Warrant Officer Class I, will receive in addition to free initial issues of clothing and equipment on enrolment, credits of \$10.00 each month from which issues of replacement clothing are charged. Exceptions are men serving with army units in a theatre of operations who will continue to receive equipment replacements without charge and women who will receive \$1.00 in cash and \$9.00 in credit each month. On honourable discharge from service or at the end of their engagement period, the servicemen will be paid in cash any balance left in their clothing account. This will provide an added incentive for servicemen to take good care of their clothing.

*Pay and Allowances*

120. To assist primarily the married serviceman who is not provided with married quarters, substantial increases in the subsistence allowances for married men, particularly in the lower ranks, become effective May 1, 1953. These increases also will apply to separated families allowances.

121. In addition to this, an increase in the ration allowance of \$10.00 a month for all ranks becomes effective May 1, 1953.

122. The new rates of pay and allowances, effective May 1, 1953, for all ranks of the three services is contained in the table on the opposite page.

RANK			Basic Pay	SUBSISTENCE ALLOWANCE		Ration Allowance	Marriage Allowance	SEPARATED FAMILY'S ALLOWANCE	
				Personnel in receipt of Marriage Allowance	Personnel in receipt of Marriage Allowance			Personnel in receipt of Sub-sistence Allowance	with Children
			\$	\$	\$	\$	\$	\$	\$
<i>Navy</i>	<i>Army</i>	<i>R.C.A.F.</i>							
Ord Sea (under 17 yrs).....	Pte (under 17 yrs)...	AC 2 (under 17 yrs)...	44 00	61 00	91 00	30 00	30 00	61 00	91 00
Ord Sea (entry).....	Pte (entry).....	AC 2.....	87 00	61 00	91 00	30 00	30 00	61 00	91 00
Ord Sea (trained).....	Pte (trained).....	AC 1.....	91 00	61 00	91 00	30 00	30 00	61 00	91 00
AB.....	Pte.....	LAC.....	98 00	61 00	91 00	30 00	30 00	61 00	91 00
Ldg Seaman.....	Cpl.....	Cpl.....	112 00	61 00	91 00	30 00	30 00	61 00	91 00
PO 2.....	Sgt.....	Sgt.....	129 00	72 00	91 00	30 00	30 00	72 00	91 00
PO 1.....	S/Sgt.....	F/Sgt.....	150 00	81 00	91 00	30 00	30 00	81 00	91 00
CPO 2.....	WO 2.....	WO 2.....	174 00	81 00	91 00	30 00	30 00	81 00	91 00
CPO 1.....	WO 1.....	WO 1.....	193 00	92 00	102 00	30 00	30 00	92 00	102 00
Midshipman.....	2/Lt.....	P/O.....	102 00	61 00	91 00	30 00	40 00	61 00	91 00
A/Sub-Lt.....	Lt.....	F/O.....	170 00	65 00	91 00	30 00	40 00	65 00	91 00
Sub-Lt.....	Com. Offr.....		210 00	89 00	110 00	30 00	40 00	89 00	110 00
Lt.....	Capt.....	F/L.....	253 00	94 00	110 00	30 00	40 00	94 00	110 00
Lt Cdr.....	Major.....	S/L.....	255 00	94 00	110 00	30 00	40 00	94 00	110 00
Cdr.....	Lt-Col.....	W/C.....	335 00	113 00	113 00	30 00	40 00	113 00	113 00
Capt.....	Col.....	G/C.....	395 00	126 00	126 00	30 00	40 00	126 00	126 00
Cmdr.....	Brig.....	A/C.....	555 00	139 00	139 00	30 00	40 00	139 00	139 00
R/Adm.....	Maj-Gen.....	A/V/M.....	737 00	153 00	153 00	30 00	40 00	153 00	153 00
			881 00	165 00	165 00	30 00	40 00	165 00	165 00

## PART VI

## DEFENCE RESEARCH

123. The Defence Research Board's staff and facilities were expanded during 1952-53 to meet increased demands for research and development from the armed services. Defence research will be continued at a higher level in 1953-54 than for the preceding year. The appropriation of \$42,-000,000 asked for the coming fiscal year is similar to 1952-53, but as the expenditure for construction will be down, the appropriation will provide for an expansion in scientific research and development.

124. Increasing demands from the armed services have been a feature of the Board's progress during the past year. These have been met in part by the Board's Defence Scientific Service which carries on activities at headquarters and in the various Research and Development Stations across Canada, and by co-operation with other government agencies such as the National Research Council, the Bureau of Mines, the Department of Agriculture and Transport, as well as the universities, provincial research foundations and industry.

125. As stated before, it is the policy of the Board to concentrate its efforts upon those problems that are of particular importance to Canada, or for which Canada has unique resources or facilities. Existing research facilities are used wherever possible to meet the needs of the armed forces.

126. Close collaboration must be maintained with Canada's larger partners and this is being done on an increasing scale. Several members of the Defence Scientific Service are on loan to United States and United Kingdom defence organizations to assist in special projects.

127. The new building for the Naval Research Establishment opened at Dartmouth, N.S. in October 1952. It is situated on the Atlantic seaboard and houses the most modern equipment for the study of maritime problems.

128. Important progress has been made in such problems as the protection of ships' hulls from the deleterious effects of living organisms and the corrosion brought about by immersion in salt water. This work will continue on an increasing scale during the coming year. Work is also being done in Canada to complete the development of a lightweight body armour.

129. Research into arctic problems continues to be of increasing importance. Air navigation in that area presents unique problems and attention has been given to difficulties encountered near the north pole. In co-operation with the R.C.A.F., the Board has recently developed a special computer for use under arctic conditions and has assisted in the preparation and publication of a manual of arctic air navigation now adopted by the R.C.A.F. The Board also has co-operated with other government departments in hydrographic and oceanographic surveys of northern seas.



130. The use of jet propulsion has given great importance to metals such as titanium. Since Canada is richly endowed by nature with minerals and has highly developed techniques for extracting them, the study of such metals opens a field in which the Board can make substantial contributions to her larger partners. An active programme of research on titanium is now in progress in co-operation with the universities, the Bureau of Mines and several industrial companies.

131. The Board's construction programme continues to make progress. During 1952-53 permanent laboratories were completed for the Naval Research Establishment, Dartmouth, N.S., the Canadian Armament Research and Development Establishment, Valcartier, P.Q., the Defence Research Telecommunications Establishment, Ottawa, and the Defence Research Northern Laboratory, Fort Churchill, Manitoba. 1953-54 will see the completion of the Defence Research Medical Laboratories, Downsview, Ontario, the Defence Research Kingston Laboratory, Barriefield, Ontario, and the Defence Research Chemical Laboratory, Ottawa. It is anticipated that the Defence Research portion of the development of Uplands Airport near Ottawa as a modern military and civil aeronautical research station will be completed this year.

132. A large part of the Defence Research Board's activity is carried on by means of some 300 grants to universities in aid of research. The policy has shown practical results and has provided training for young scientists in fields of defence significance.

## PART VII

## EQUIPMENT

*Equipment Contracts*

133. During the fiscal year 1952-53, approximately 165,000 contracts were placed by the Department of Defence Production for defence equipment and stores amounting to nearly \$1,228 millions.

*Naval Equipment*

134. At March 31, 1953, orders had been placed or contracts were in the process of being let for eighty-three ships and auxiliary craft. These include an aircraft carrier, escort vessels, minesweepers, a northern patrol craft, inner patrol craft and auxiliary craft such as diving vessels, ocean-going tugs and crane lighters.

135. A total of four escort vessels have been launched and four are expected to be launched this year. The keels of the other five vessels will be laid down during 1954. The northern patrol craft H.M.C.S. "Labrador" is expected to be completed before the end of 1953. The construction of the fourteen minesweepers has passed the ordinary launching stage in all cases though to date only eight have actually been put in the water. In all, during 1953-54, deliveries are expected of ten minesweepers, one ice-breaker, two inner patrol craft and thirty-one auxiliary craft.

136. The refitting and modernization programme for existing frigates, minesweepers and destroyers is well under way. A total of five destroyers have been converted and recommissioned. Nine minesweeper refits were completed and these ships are in a new reserve fleet base at Sydney, N.S. one additional destroyer, ten "Bangor" class minesweepers, two diesel minesweepers, and sixteen frigates are expected to complete conversion refits during 1953.

137. The new modernized carrier under construction by Harland and Wolff, Belfast, Ireland, will be named H.M.C.S. "Bonaventure".

138. Contracts are progressing satisfactorily and negotiations have been completed for the great majority of armament and ammunition requirements of the Royal Canadian Navy programme. Manufacture of 3-inch 50 calibre and 40 mm. ammunition, as well as anti-submarine explosives, is progressing satisfactorily. Considerable assistance has been received through the co-operation of the British Admiralty and the Bureau of Ordnance, United States Navy.

*Army Equipment*

139. Deliveries are under way of new types of vehicles, weapons and other equipment for the Canadian Army from Canadian production. The

production programme includes wheeled vehicles of both commercial and military types, guns of various calibres, mortars, rocket launchers and ammunition. A Canadian short range (walkie-talkie) radio set is now in production and will be in use by the Army this year.

140. Deliveries of the British Centurion tank to Canada will continue in 1953-54. The 27th Canadian Infantry Brigade in Europe is already equipped with this tank. Additional Centurions are being delivered to meet the requirements of the Active Force armoured units in Canada.

#### *Air Force Equipment*

141. Deliveries of Canadian produced F-86E Sabre aircraft are progressing as scheduled to enable the R.C.A.F. to meet all commitments requiring this aircraft. Deliveries of the Sabre Mark 5, powered by the Orenda engine will begin this autumn.

142. Three variations of the prototype CF-100 which first flew in January 1950 have been developed. The Mark 3 which is now in production is equipped with a later version of the Orenda and is armed with eight 50 calibre machine guns. The Mark 4 also powered by a later version of the Orenda, is equipped with 50 calibre machine guns, and air to air rockets.

143. The prototype Orenda engine first ran in February 1949, thirty months after commencement of the design. With this running the development phase commenced and has extended over a period of four years through five different versions.

144. These engines have been produced for the CF-100 and will also be installed in the latest version of the F-86E, the Sabre Mark 5. Tests of this engine show that it will improve the performance of the Sabre fighter, making it better than those now being flown in operational units.

145. Because the aircraft we are now producing will eventually become obsolete, the R.C.A.F. and the Canadian aircraft industry are constantly working on developments of existing types and are studying new types.

146. The costs of Canadian design and development of the CF-100 and Orenda engines have been heavy. These costs, however, are no more extensive than those experienced by other countries developing similar types of aircraft and engines. Moreover, considerable expense would have been incurred on the licence fees which would have been payable on an aircraft developed in another country had one been available. On the other hand, funds expended for aircraft development in Canada support and encourage Canadian design and development organizations, essential to the growth of the Canadian aircraft industry.

147. Delivery of the jet T33 trainer has commenced from Canadian production. Deliveries of other aircraft, including C119 medium transports purchased from the U.S.A.F., are being received.

148. A total of 254 aircraft have been overhauled or repaired by contractors during 1952-53, with 216 in process. These include Lancasters, Sabres, Expeditors, Harvards, Mitchells, Mustangs, Dakotas, Chipmunks, Silver Stars, Vampires, Norsemen, Cansos, Helicopters and North Stars.

### *Mobilization Stores*

149. At the outbreak of the First and Second World Wars the Canadian forces had little in the way of stores of equipment and clothing. Determined that Canada would not be found in a similar position should another war suddenly break upon us, the Minister of National Defence, when he outlined Canada's defence policy to the House of Commons in February 1951, said that measures would be taken to procure the necessary "stores, clothing and equipment to provide for rapid mobilization in a total effort".

150. Plans for mobilization are by no means rigid. They must be sufficiently flexible to take into account the possibility of mobilization in summer and winter, or a large-scale effort on short notice, as well as a mobilization over a longer period of time.

151. The policy is to stockpile only those hard or soft goods which it would not be possible to obtain in the quantities needed by the time they were required.

152. During the spring of 1951 plans were put into action to procure the necessary items of soft goods (barrack, camp and hospital stores, clothing, etc.) and hard goods (weapons and equipment).

153. The factor termed "lead time" must be considered in placing orders. Lead time is the period from the date an order is placed until quantity production is flowing into the depots. Lead time varies greatly with various types of items. For soft goods, generally speaking, the lead time is usually nine months. It requires twelve months to receive finished uniforms. For hard goods lead time is much greater. It requires two years or more to produce an escort vessel and at least five years to develop and produce a fighter aircraft.

154. The mobilization stockpile of soft goods has largely been completed. In respect to hard goods, however, a much longer period of time is necessary for design, development and production and many orders are still in the process of delivery.

155. Stated requirements have been under continuous review by both the Department of National Defence and the Department of Defence Production. Scales of issue have also been revised as user experience has been acquired.



## PART VIII

## CONSTRUCTION

156. The total number of major construction contracts undertaken by the Department of National Defence and supervised by this Department and other agencies during the period April 1, 1950, to March 31, 1953, totalled 2,090. Of these approximately 1,070 were under administration during the fiscal year 1952-53 and were valued at approximately \$359.8 million. Of the total of 2,090 contracts let during the 3-year period, 452 were in excess of \$250,000 having an aggregate total of \$481.5 million. Many of these have been completed.

*Navy Construction*

157. Construction included permanent barrack blocks at Dartmouth, Halifax and Esquimalt. Buildings are reinforced concrete and provide living, messing and recreation facilities for 750 to 800 personnel.

158. The seaward defence base at Halifax is expected to be largely completed by May, 1953, and the seaward defence base at St. John's, Nfld., by the fall of 1953.

159. The large supply depot at Ville la Salle, P.Q., is nearing completion. This will provide 435,000 sq. ft. of covered storage. Additional magazines have been completed at Kamloops, B.C., and Renous, N.B.

*Army Construction*

160. Construction is required to provide accommodation and training facilities to meet the growth in size and operation of the Canadian Army. Owing to the remoteness from civilian amenities of certain Army installations, on-site recreation facilities are required such as physical training buildings as well as chapels and schools.

161. The new training area in New Brunswick will take two or three years to complete facilities to enable a division to train at that location. The total cost of the development including the acquisition of land and construction of buildings and services will exceed \$25 million. Employees will approximate 4,500.

162. The development will proceed progressively in planned stages during which every consideration will be given to local authorities and residents.

163. Other large construction projects are being carried forward at Winnipeg, and Edmonton, the headquarters, respectively, of the Prairie and Western Commands. These sites are being developed for offices, engineer shops, supply depots, medical stores, permanent married quarters, and to provide accommodation for units of the Active Force.

164. At Cobourg, construction of the Ordnance Depot is continuing. A central heating plant, administration building, fire hall, six warehouses and twenty-five married quarters are being erected in addition to the provision of roads, a railway siding and sewer and water facilities. Each of the warehouses will have an area of 100,000 square feet and an estimated storage capacity of 5,000 tons.

#### *Air Force Construction*

165. The rapid build-up of the R.C.A.F. necessitated rehabilitation of wartime buildings and installations. This is virtually complete.

166. New buildings include fire-resistant supply depots at Downsview, Ontario, and Namao, Alberta, each covering over 750,000 square feet, twenty-six hangars for the housing and maintenance of aircraft located at Greenwood, Chatham, St. Hubert, Saskatoon, North Bay, Trenton, Namao, Winnipeg, Camp Borden, Cold Lake, Comox and Uplands. These hangars include shelters of steel and canvas for single fighter aircraft, hangars 160 feet wide of both concrete arch and structural steel construction for the largest aircraft, and 424 foot-wide maintenance hangars and workshops of cantilever construction.

167. In addition, one hundred barracks are being constructed to house 10,656 officers, NCO's and airmen. These barracks are designed to accommodate twice that number in an emergency.

168. The R.C.A.F. station at Cold Lake, Alberta, will be a completely new and self-contained development. Its facilities will include six modern fire-resistant hangars, complete quarters, messing, recreation and administrative accommodation. The two runways which have been constructed will be equipped with the latest form of high intensity runway, approach lighting and radio landing aids.

## PART IX

## DEFENCE APPROPRIATIONS

169. The 1953-54 estimates of the Department of National Defence amount to \$2,000,795,000 which is approximately the same as the appropriation in 1952-53 of \$2,001,725,000. Expenditures against the 1952-53 appropriation are expected to be about \$1,875,000,000.

*Form of Estimates*

170. Under the Defence Appropriation Act 1950, a Special Account was established to which is credited the value of equipment transferred from Navy, Army or Air Force stocks to members of the North Atlantic Treaty Organization as Mutual Aid. A special account established under the National Defence Act is credited with the sale price of service equipment sold to other countries. It is estimated that expenditures from these accounts in the fiscal year 1953-54 will be approximately \$84 millions. Details of these amounts are included in the tables on pages 39 and 40.

171. Transfers of equipment for Mutual Aid in 1953-54 will include equipment procured for the forces since April 1, 1950. Expenditures may be made on this equipment from the Service Appropriation in the same year in which the equipment is transferred as Mutual Aid, at which time it is also recorded as a charge against the Mutual Aid Appropriation. To avoid expenditures against both Service and Mutual Aid Appropriations in respect of the same equipment in the same year, it has been decided that in future credits arising from these transfers shall not be established in the Special Account, but shall instead be applied to the Service appropriations. This policy is also being followed in respect of transfers of this type of equipment in 1952-53.

172. Consequently, in the 1953-54 Estimates, the detailed amounts in the Service Votes and the Mutual Aid Vote together exceed the estimated appropriation requested by some \$247 millions which is made up of \$84 millions to be expended from the Special Accounts and the estimated transfers of equipment as Mutual Aid from stocks acquired by the services since April 1, 1950, amounting to \$163 millions.

*General*

173. Military personnel costs are estimated to be \$34 millions less in 1953-54 than the estimates for 1952-53, and some \$2 millions less than the forecasted expenditure for 1952-53. Expenditures for mobilization reserves of clothing and personal equipment have been largely completed.

174. The estimates for construction are approximately \$19 millions less than the estimates for 1952-53 and \$42 millions less than the expenditure forecast for that year. This mainly results from the fact that the construction programme, particularly for the Air Force, has passed its



peak. The estimates for operations and maintenance costs are somewhat lower than the estimates for 1952-53 but some \$65 millions more than the expenditure forecast for that year.

175. The major increase in the estimates for 1953-54 is for equipment. These estimates are about \$170 millions higher than the estimates for 1952-53. Aircraft and engines account for the greatest portion of this increase, \$105.5 millions. The 1953-54 estimates contain an increase of \$28 millions for ammunition and bombs, \$28 millions for signal and wireless equipment and \$11 millions for ships over the 1952-53 estimates. The 1953-54 estimates are some \$217 millions more than the presently forecasted expenditure for the previous year reflecting the increased production of defence hard goods expected in the coming year.

### *Navy*

176. Estimated expenditures by the Royal Canadian Navy in 1953-54 show an increase of \$64,131,118 over the estimates for 1952-53. Increased production of ships, armament, ammunition and electronics account for nearly \$62 millions of this increase while construction expenditures are about \$4 million higher. There are reductions in military personnel and operations and maintenance costs mainly in clothing, barrack stores and miscellaneous supplies. The estimates provide for transfers for Mutual Aid of ships, ammunition and other equipment valued at \$44,700,000 from current production. When transferred, the value of this equipment will be charged to the appropriation for Mutual Aid and a credit of an equivalent amount will be allowed for Navy expenditures in 1953-54.

### *Army*

177. The 1953-54 programme for the Canadian Army involves estimated expenditures totalling \$533,007,000 a decrease of \$16,478,000 from 1952-53 estimates. Military personnel costs are reduced by \$39.5 millions and there are also smaller reductions in estimates for construction and operations and maintenance costs. On the other hand, planned expenditures for equipment, including ammunition, will exceed 1952-53 estimates by \$39 millions.

178. Expenditures on equipment will include an estimate of \$71,781,000 from the Special Account compared with \$17,885,000, which had been planned for 1952-53. Credits arising from transfers of equipment to Mutual Aid in 1953-54 are expected to amount to \$22,296,000.

### *Air Force*

179. The 1953-54 Royal Canadian Air Force expenditures are estimated at \$936,423,100 as compared with an appropriation of \$759,310,300 in 1952-53, an increase of \$177,112,800. Estimated expenditures in 1953-54 on personnel, construction and operations and maintenance are somewhat lower than the 1952-53 appropriations for these items but these reductions are more than offset by the large increase in provision for equipment, notably aircraft and signal and wireless



equipment. Expenditures on equipment will include an estimated \$11,976,000 from the Special Account, and credits from Mutual Aid transfers are estimated at \$96,219,000.

### *Defence Research*

180. The 1953-54 estimate for defence research and development is the same as for the current fiscal year, namely \$42,000,000. The costs of staff and operations will be somewhat higher but will be offset by reductions in construction and equipment costs as new plant is completed.

### *Mutual Aid*

181. Estimated expenditures 1953-54 for Mutual Aid are \$324,000,000 which is the same as the amount appropriated in 1952-53. Expenditures in 1952-53 are now estimated to be in the order of \$234,000,000. The principal elements of the 1953-54 programme are:

- (a) the continuation of aircrew training for other NATO countries;
- (b) purchase of military equipment ordered directly for Mutual Aid purposes and,
- (c) transfers of equipment held by the Canadian forces.

182. Breakdowns of the estimated expenditures by fiscal year and by country up to March 31, 1953 are contained in the following tables:

### **MUTUAL AID PROGRAMME**

(thousands of dollars)

	Expenditure 1950-51	Expenditure 1951-52	Forecasted Expenditure 1952-53	Estimates 1953-54
Transfers of WWII stocks (Cr. to R/A) .....	195,417	74,934	55,414	40,259
Transfers from New Prod. Service stocks .....	....	....	40,042	163,215
Direct Charges incl. progress payments...	....	2,930	32,833	31,930
Infrastructure & NATO Budgets .....	....	....	2,136	7,000
NATO Aircrew Training...	....	48,552	103,264	81,596
Expenditures .....	195,417	126,416	233,689	324,000

**DEPARTMENT OF NATIONAL DEFENCE**  
**Mutual Aid Programmes\***  
**Deliveries of Materials and Supplies and NATO Air Crew Training**  
**Actual and Estimated Expenditures from Inception to March 31 1953**  
**(Millions of Dollars)**

	Nether- lands	Belgium	Italy	France	Portugal	Luxem- bourg	Den- mark	Norway	U.K.	Totals
<b>TRANSFERS FROM STOCK—</b>										
Divisional Equipment and Ammuni- tion	56.7	56.7	50.0							163.4
Armament	5.4	4.5	33.6	23.5	8.9	0.7	7.2	0.8	2.7	87.3
Ammunition	7.4	11.3	12.1	12.2	5.9	0.4	3.5	1.9	1.1	55.8
Mechanical Equipment	2.5		2.3		4.7			0.7	1.7	11.9
Aircraft and Engines	0.1		0.3	0.3			0.1	1.3	0.3	2.4
<b>TRANSFERS FROM NEW PRODUCTION—</b>										
Aircraft and Engines	0.8	0.5	1.6				0.7	0.6	38.6	38.6
Radar Sets	0.4	0.6	1.4	0.6	0.1		0.1	0.2	6.5	10.7
Ammunition									5.0	8.4
Total Value of Transfers	73.3	73.6	101.3	36.6	19.6	1.1	11.6	5.5	55.9	378.5
<b>NATO AIR CREW TRAINING</b>										
Progress Payments on Production	73.3	73.6	101.3	36.6	19.6	1.1	11.6	5.5	55.9	153.6
										19.7
										\$551.8**

\* This statement is based on actual and anticipated shipments of materials and supplies to March 31, 1953; and actual and estimated expenditures on NATO Air Crew Training to March 31, 1953.

\*\* A later estimate of expenditures on Mutual Aid of \$555.5 million appears at page 35, but a breakdown similar to the above was not available at press time.

### *Contributions Towards Military Costs of NATO*

183. As a member of the NATO community of nations, Canada shares an obligation to contribute agreed shares of the cost of Supreme Headquarters Allied Powers Europe (SHAPE) military budgets and the infrastructure programme of commonly financed facilities which include air-fields, operational buildings and services, communication facilities, etc., up to the agreed minimum SHAPE standards.

184. To date the North Atlantic Council has approved three of these infrastructure programmes. The first, known as 2nd Slice Infrastructure Programme was approved at the Ottawa meeting of the North Atlantic Council in September, 1951. The 3rd Slice Infrastructure Programme was approved at the Lisbon meeting of the Council in February, 1952, and at the Ministerial meeting of the Council held in Paris in December, 1952, approval was given to the 4th Slice Infrastructure Programme.

185. The Canadian contribution to these programmes of which a part is paid from the Mutual Aid appropriation, can be summarized as follows:

	Slice 2	Slice 3	Slice 4
Canadian Contribution as a percentage of total programme .....	4.43	5.33	6.00
	(Million dollars)		
Portion of the Canadian contribution from the general Department of National Defence appropriation .....	9.8	18.6	9.2
Portion of Canadian contribution paid from Mutual Aid .....	4.9	5.9	4.6
Total Canadian Contribution .....	14.7	24.5	13.8

186. Like other countries Canada will itself meet the cost of accommodating its personnel as well as the cost of other facilities over and above SHAPE standards.

187. The 1953-54 estimates provide for an expenditure of \$20,600,000 for the three previously mentioned purposes, as compared to \$27,500,000 provided for similar purposes in 1952-53. It is divided as follows:

1. Contributions to Military Budget of SHAPE .....	\$ 1,750,000
2. Infrastructure .....	15,150,000
3. Accommodation, etc. ....	3,700,000
Total .....	\$20,600,000

### *Canada, U.K., U.S. Reciprocal Purchases*

188. During the last three years, expenditures by Canada on defence equipment and other materials entering into the defence production programme from the United Kingdom and the United States were as follows:

	1951-52	1952-53
United Kingdom .....	\$ 9,962,000	\$ 28,054,000 (11 mos.)
United States .....	179,937,000	153,411,000

189. During the same period Canada sold to the United States defence equipment and has received payment for construction of defence establishments in Canada as follows:

	1951-52	1952-53
Defence Equipment .....	\$29,995,000	\$ 93,907,000
Construction .....	12,602,000	24,528,000
Total .....	\$42,597,000	\$118,435,000

#### *Travel and Removal Expenses*

190. Travel and removal costs in 1953-54 are estimated at \$38,204,450 compared with \$32,289,919 in 1952-53. The following table summarizes briefly the main elements that go to make up these costs:

	1953-54	1952-53
Service transfers and postings including removal expenses of dependents and effects .....	\$13,912,000	\$13,793,000
Reinforcement and rotation of overseas forces ..	5,280,000	3,598,000
Transportation on leave .....	5,076,000	2,823,000
Temporary duty travel .....	7,815,000	6,620,000
Civilian travel .....	2,932,000	2,400,000
Reserve Forces, Services Colleges, cadets, etc. ..	3,189,000	4,056,000
Total .....	\$38,204,000	\$33,290,000

191. It will be noted that the first two items amount to about half the total estimate. The first category covers the cost of moving officers and men between training centres, camps, etc., in the course of training programmes, or to take up new duties. It also covers, where applicable, the costs of moving families and household effects.

192. The reinforcement and rotation of overseas forces is estimated to involve moving about 30,000 soldiers and airmen between Canada and overseas units in 1953-54, compared with about 23,000 on which the 1952-53 estimate was based.

193. Transportation on leave consists largely of the cost of embarkation and disembarkation leave, principally for the 25th Canadian Infantry Brigade serving in the Far East. Civilian travel expenses include the travel costs of the civilian administrative staff such as departmental auditors, inspectors, etc.

#### *Comparison with Previous Years*

194. The following tables compare National Defence appropriations and expenditures since 1948 by service and by cost category. A distribution of the defence dollar by service and by cost category is also included.





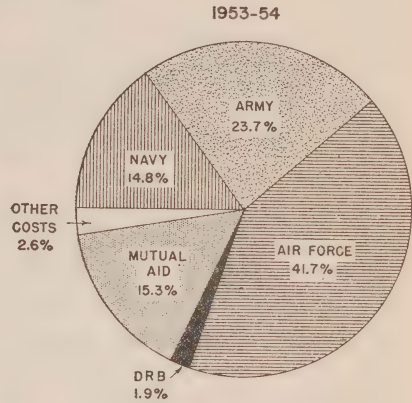
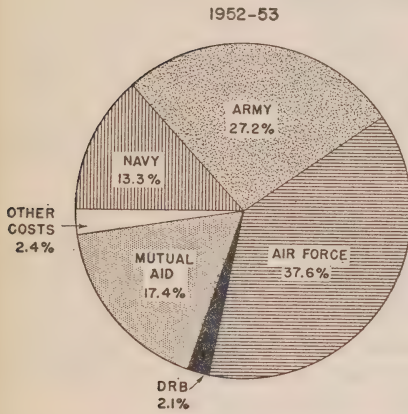
**DEPARTMENT OF NATIONAL DEFENCE**  
**Table of D.N.D. Appropriations and Expenditures by Major Categories**  
(thousands of dollars)

Major Categories	1948-49		1949-50		1950-51		1951-52		1952-53		1953-54
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Forecasted Expend.	Estimates
Military Personnel Costs	106,668	104,353	141,267	140,495	186,836	184,301	333,295	346,832	437,486	406,201	403,965
Procurement of Equipment	33,987	27,378	70,600	65,519	136,390	144,590	671,570	486,212	753,711	706,977	923,582
Construction	31,791	24,430	36,732	37,569	77,367	85,820	209,416	173,336	243,834	266,352	224,382
Operations and Maintenance Costs	103,138	112,644	133,462	141,297	208,200	191,660	367,005	383,197	504,259	426,934	492,364
Total Cash Disbursements.	275,584	268,805	387,061	384,880	608,793	606,371	1,581,286	1,389,577	1,939,290	1,806,464	2,044,293
Add charges to Mutual Aid for transfers of: World War II Equipment (Corresponding credits are made to Special Account under Sec. 3 Def. Appropriation Act 1950)											
Equipment in current production for Canadian Forces (Corresponding credits are made to Service Appropriations)					195,417	195,417	77,250	74,934	80,320	55,414	40,259
Gross Total					804,210	801,788	1,658,536	1,464,511	2,019,610	1,901,920	163,215
Deduct: Expenditures from the Special Account under Sec. 3 of the Def. Appropriations Act 1950.											
					19,886	19,886	49,037	49,037	17,885	(a) 14,846	83,757
Credits to Service Appropriations from transfers to Mutual Aid of equipment in current production											
										40,042	163,215
Budgetary Appropriations and Expenditures	275,584	268,805	387,061	384,880	784,324	781,902	1,609,499	1,415,474	2,001,725	1,876,724	2,000,795

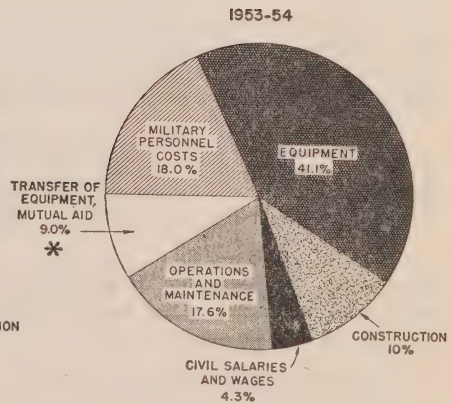
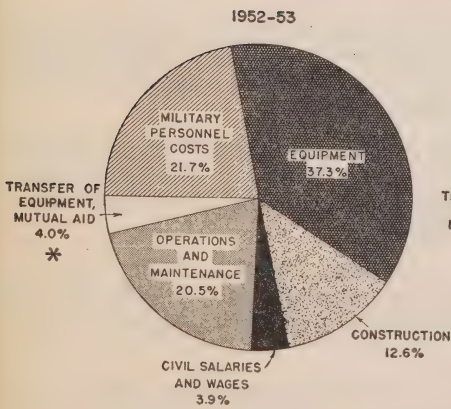
(a) Add amount by which refunds to Special Account in 1952-53 of expenditures made in prior years exceed expenditures from Account in 1952-53.

# DISTRIBUTION OF DEFENCE DOLLAR

## BY SERVICES



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\*From Stocks

## PART X

## THREE YEAR PROGRAMME

195. Reference was made in the opening paragraph of this paper to the three-year defence programme announced on February 5, 1951, by the Minister of National Defence when he said:

"The three-year programme outlined will involve the expenditure, in all matters of the defence of Canada, and our participation in the common effort, of over \$5 billion."

196. At the time when it was announced, it was not possible to anticipate the precise rates of build-up of personnel, construction and equipment, the scale of operations, or the cost of new types of buildings, such as radar stations, and of equipment.

197. Figures are now available showing the actual expenditures for 1951-52, the expenditures for 1952-53, forecast on the basis of preliminary figures and the estimates for 1953-54 put before Parliament.

198. These are shown on the preceding table under the four main divisions; Personnel (which includes expenditures on such matters as military pay and allowances, food, clothing and medical services for service personnel); Equipment (which includes ammunition but does not include other consumable stores); Construction (which includes new construction and renovations but not maintenance); and finally, Operations and Maintenance (which includes civil salaries, upkeep of buildings and consumable stores such as fuel, lubricants and spare parts for ships, aircraft and motor vehicles).

199. It will be seen that the estimated cost of defence during the three year programme, is \$5,293 million as compared with the original estimate of \$5 billion. The addition of \$293 million represents approximately 5.9 per cent of the total of the original plan.

200. In addition, it is estimated that expenditures from appropriations of the Department of Defence Production will total about \$311 million and other expenses admitted as Defence Expenditures under NATO practice will total \$121.9 million.

201. While Canada, like other countries, has been working on a three-year programme, it should be appreciated that defence planning must extend well beyond the period of three years and the programme is subject to continuous review.

202. It should also be pointed out that for the year 1953-54, and for subsequent years so long as defence activities are carried on at anything like the present scale, the annual expenditure on what may be called "current account", that is, for personnel, operations and maintenance, will total about \$900 million.



203. The amount to be expended on construction, set at \$224 million for 1953-54, is lower than last year and should be further decreased in subsequent years as the most urgent needs for construction are met.

204. The amount estimated to be required in 1953-54 for equipment of \$923 million is largely for aircraft, ships, tanks and other vehicles, weapons and ammunition. To maintain our forces at their planned strength, it will be necessary, when practicable, to replace equipment destroyed, worn out, or obsolete with equipment of the latest available type. To this end, research and development will be continued on equipment which is already of Canadian design or for which we have a particular requirement or specialized knowledge and productive capacity. In this connection, we shall continue to work closely with our allies, particularly Britain and the United States.

205. It is not possible for any country to replace existing equipment with every new development. The decision as to how much better a new weapon must be than the old weapons to justify replacement is often a difficult one to make. Because there is never enough money to do everything that is desired or desirable, all defence planning is a question of determining priorities after taking into consideration all the known factors.









CAI  
ND  
-C/2

C.B. Stacey



# CANADA'S DEFENCE PROGRAMME

1954-55

**HON. BROOKE CLAXTON**

Minister of National Defence

**HON. RALPH CAMPNEY**

Associate Minister of National Defence

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1954.



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## PART I

### INTRODUCTION

1. The past year has seen very substantial accomplishments in Canada's defence programme announced by the Minister of National Defence on February 5, 1951. The programme has been subject to constant review and, as necessary, some modifications have been made to meet varying demands inherent in Canada's commitments. It is appropriate now to provide the fullest possible information on our defence activities and plans, in order that this programme can be understood in the light of Canada's overall defence policy. The amount sought in the appropriations for the fiscal year 1954-55 is what is needed during this period to meet our continuing commitments.

2. Although there have been indications in recent months of some relaxation in international tension, the need for Canada, in common with other nations of the free world, to maintain adequate defence forces remains a matter of vital importance. With the cessation of hostilities in Korea on July 27, 1953, the United Nations forces achieved the military objective of their efforts in that area. This objective was to prevent aggression by stopping aggression. Since agreement has not been reached on arrangements for a peace settlement, we continue to retain the 25th Canadian Infantry Brigade Group in Korea as an integral part of the First Commonwealth Division. Units of the R.C.N. continue to co-operate with United Nations forces in the Far East in patrols and training exercises and the R.C.A.F. airlift to Japan continues to operate, as necessary.

3. The present stage of development of NATO represents a unique evolution in the efforts of sovereign nations to safeguard themselves against aggression. In the past there have been many alliances and in some cases members of these alliances have committed themselves in advance of war to appreciable measures of staff planning. But never before has the world witnessed the formation of a defensive alliance in which in time of peace units of the navies, armies and air forces of member nations have actually been combined under an effective common command.

4. Both in the conception and growth of NATO Canada has played a not unimportant role, and in the initial phase of developing NATO's strength Canada has successfully fulfilled her commitments well within the anticipated time. The 1st Canadian Air Division is at present providing 12 squadrons of first line fighters for NATO. The division has its headquarters at Metz in France, with Wings at Grostenquin, France; Baden-Soellingen and Zweibrucken, Germany; and a base depot at Langar, England; arrangements for a further station at Marville, France, are now well advanced and the 1st Fighter Wing of the R.C.A.F., now

stationed at North Luffenham in Rutlandshire, England, will be moved to Marville when the accommodation there is ready, probably late in 1954. This Canadian Air Division is fully operational and constitutes one of NATO's most highly efficient fighting components. In Germany, the 1st Canadian Infantry Brigade, in accordance with a similar policy of rotation of units as is followed in Korea, has replaced the 27th Canadian Infantry Brigade which has returned home after establishing a distinguished record for military competence. The R.C.N. has continued its build-up of ships to meet commitments to SACLANT. Members of Canada's armed forces are serving on the staffs of nine principal NATO headquarters and large agencies, including Supreme Headquarters Allied Powers Europe (SHAPE); Headquarters Allied Air Forces Central Europe; Headquarters, Supreme Allied Commander Atlantic; and the NATO Defence College. Moreover, in the coming year, as previously, Canada will make a substantial contribution towards the military costs of NATO. The Mutual Aid Programme will be continued at much the same level, and a much higher proportion of the equipment supplied to our allies will now come from post-war production.

5. Along with participation in these collective efforts to deter or deal with aggression abroad, Canada has continued to build up her defences at home. Good progress has been made in strengthening the permanent seaward defences in the areas of our established naval bases on the West and East coasts and additional plans are being carried out in the vicinity of St. John's, Nfld. On land, our mobile striking force has been enhanced by battle-experienced battalions recently returned from service in Korea and intensive training is being carried out with particular reference to arctic and sub-arctic defence. Training and provision of equipment for this type of warfare are also being undertaken by the R.C.A.F., while supporting elements of this service continue to cooperate with units of the other two services.

6. Canada's working partnership with the United States for the joint defence of North America antedates the latest global threat to nations of the free world. Indeed, a beginning was made towards the defence of this continent by the governments of Canada and the United States back in 1938; subsequent wartime cooperation has been followed by further mutual accomplishments in succeeding years. One of the latest confirmations of our combined determination to devise ways to protect North America from any surprise attack by air was made known on the occasion of President Eisenhower's visit to Ottawa last November, when he underlined the fact that the Canadian-United States Permanent Joint Board on Defence, "has worked assiduously and effectively on mutual problems," and that: "Now is the time for action on all agreed measures".\* Canada's decision to start work on additional air defence measures, including the "McGill Fence" concept, was announced in the House of Commons by the Minister of National Defence on November 26, 1953.†

\* House of Commons Debates, November 13, 1953, p. 27.

† House of Commons Debates, November 26, 1953, p. 364.

7. The need for continuing vigilance on the part of the nations of the free world and for the necessary strength to support their aspirations for peace is to be found, to go back no further, in the lessons of the uncertain period on the eve of the Korean War. About that time it has been said that certain powers were "tempted" to commit aggression by the prospect of an easy conquest of a nearly defenceless area. Since that time the free world has built up its armed forces and has made clear its determination not to tolerate wanton aggression. The apparent improvement in the present international situation is directly related to the growing ability of the free nations to speak from a position of strength. It is essential if we are to maintain and improve the prospects for peace that the NATO countries must continue, perhaps for a lengthy period, to devote a substantial part of their resources to the common defence effort.

## PART II

### CANADA'S DEFENCE OBJECTIVES

8. The objectives of our defence policy remain the same as heretofore:
- (i) The immediate defence of Canada and North America from direct attack;
  - (ii) implementation of any undertakings made by Canada under the Charter of the United Nations, or under the North Atlantic Treaty Organization, or other agreement for collective security;
  - (iii) the organization to build up strength in a total war.

#### Defence Against Direct Attack

9. The most probable method of attack upon North America by a hostile power would be by air. Recent indications confirm the fact that the U.S.S.R. has made further progress in the fields of atomic and other nuclear weapons and in the development of long range bombing potential. Canada and the United States, consequently, remain determined to continue to take all reasonable measures for adequate defence of the North American continent. The element of surprise tends today to give a would-be aggressor an even more significant advantage than in the past.

10. Insofar as effective air defence is concerned, it is of paramount importance that three sets of operations should be successfully integrated. These are: first, the prompt detection and identification of the enemy by radar, ground observers, or other means; second, the communications of this intelligence inwards to a command centre and the outward communication of orders and intelligence to air and ground defence units and to civil defence authorities; finally, trained personnel, aircraft and anti-aircraft weapons must be able to annihilate or drive off the attackers. It is towards the fullest practicable realization of these ends that the joint efforts of Canada and the United States have been, and will continue to be, directed.

11. Defence against air attack is only one part (though a very important part) of the various measures that must be taken for defence of the continent of North America against direct attack; and continental defence and the build-up of the strength of the North Atlantic nations in Western Europe must be carried on at the same time as part of the one general operation of preserving peace and preventing aggression by having the strength, actual and potential, to make it plain that aggression will not pay.

#### *Air Force*

12. In the past year considerable progress has been made in the construction of the joint Canadian-U.S. network of radar stations to provide early warning and communications facilities for directing squadrons of fighters. New radar installations of the most modern and powerful type have replaced practically all of the temporary mobile facilities which were in use since the Second World War. A number of installations, primarily of usefulness in the defence of the United States, have been manned by U.S. personnel. Additional capacity for protection against



air attack is being provided as a supplement to the radar chain, without undue expense as to money, materials and manpower. In this connection the equipment known as the "McGill Fence" has been developed and tested extensively, largely by McGill University in cooperation with the Defence Research Board. United States authorities have been kept fully informed of this project from the beginning.

13. Substantial progress has been made in the formation of the Ground Observers Corps, which is composed almost entirely of volunteer civilians. The purpose of this Corps is to augment early warning radars by detecting and reporting low flying aircraft.

14. The build-up of regular and auxiliary fighter squadrons continues. Thirty-seven of the forty-one squadrons previously planned in the Canadian Defence Programme are now organized and the balance will be established this year as scheduled. Several CF-100 all-weather squadrons are already operating in Canada. These squadrons have replaced the Sabre squadrons, which are now serving NATO in Europe. Auxiliary squadrons will in due course be converted to CF-100 fighters.

15. A joint Canadian-U.S. continental air defence exercise, "Tail Wind", took place in July 1953. This was similar to exercise "Signpost" of July 1952. U.S. Strategic Air Command bombers along with R.C.A.F. aircraft provided the "enemy" forces. R.C.A.F. regular and auxiliary squadrons both participated as interceptor forces.

### *Army*

16. The Mobile Striking Force is maintained for defence against surprise airborne attack. The Army component of this force now consists of battle-experienced infantry battalions returned from service in Korea, supported by airborne units of artillery, engineers, signals, Army Service Corps and medicals. Airlift is now provided by C-119 aircraft, and continued airborne training is being carried out. Both Army and Air Force components of the Mobile Striking Force participated in northern airborne exercises, including "Bulldog" and "Hotdog II" in the western sub-arctic, and "Loup Garou" in northeastern Quebec and Labrador. The majority of Canadian Army anti-aircraft weapons are now of United States pattern, and training of active force personnel with this equipment is in progress. Extension of this training to the Reserve Force is underway.

### *Navy*

17. For the protection of shipping and the defence of Canadian coastal areas and harbours, the Royal Canadian Navy had in commission fifty-eight ships during the period March 31, 1953, to March 31, 1954. Thirty-six of these were earmarked for assignment to NATO for the defence of the Canada-United States area, and for the protection of convoys under the control of SACLANT. Ships not earmarked for assignment to NATO are required for harbour defence, for training and for miscellaneous duties. With the ships in reserve and otherwise available to the Royal

Canadian Navy in the event of war, the Navy can now make ready for war service within a few months after mobilization, over a hundred ships, not including civilian manned auxiliary vessels.

18. The seaward defences of Halifax have been tested and found satisfactory by exercises with submarines of the Royal Navy and United States Navy. Certain of the equipment required to complete the defences of the port is liable to deterioration and is kept ready for immediate installation. Good progress is being made with defences of Esquimalt and St. John's, Nfld, and most of the equipment not liable to deterioration is now in position. The 1st Canadian Minesweeping Squadron has been formed on the East Coast.

## UNITED NATIONS AND NATO

### (a) United Nations

19. The Korean Truce, signed on July 27, 1953, brought to an end a period of hostilities which lasted thirty-seven months. During the transition period the situation continues to demand that Canada assist the United Nations in Korea. It is hoped that the situation may improve to permit some reduction to Canadian forces there in the not too distant future.

20. The Royal Canadian Navy has maintained three destroyers continuously in Korea since July 1950. Eight different R.C.N. destroyers have been taking part in these operations which involved steaming approximately 725,000 miles and firing some 130,000 shells prior to the termination of hostilities. At present H.M.C.S. *Cayuga*, *Crusader* and *Haida* are on duty in the Far East.

21. No. 426 R.C.A.F. Squadron and Canadian Pacific Airlines aircraft under charter to the government carried out heavy transport operations to the Far East. Between July 29, 1950, and July 27, 1953, some 1,000 return Pacific crossings were made and thirteen and a half million miles were flown without passenger injury. Of these return crossings No. 426 Squadron made 515, totalling 30,097 hours flying time and 6,540,000 miles. At present the R.C.A.F. continues to provide regular transport flights to and from the Far East.

22. The 25th Canadian Infantry Brigade Group has been continuously in Korea as part of the 1st Commonwealth Division, United Nations Forces. The Brigade Group has been maintained at strength with all necessary supporting units and comprises the third largest contribution to the U.N. Command from outside Korea. During the period that the 25th Canadian Infantry Brigade Group has been in Korea, two rotations by units were carried out. A third rotation is now in progress, which will result in service in the Korean area for a fourth group of Canadian units. Duties of the 25th Canadian Brigade at present involve prevention of unauthorized persons entering or leaving the Demilitarized Zone. In addition, an intensive training programme is being conducted to maintain the combat effectiveness of the formation.

23. The Korean War proved to be a stern test that was ably met by nearly 27,000 officers and men of our three armed forces who served in the Far East during the period of hostilities. The Korean War also put extra, challenging burdens on many personnel in Canada concerned with administration, training, production, supply and transportation. Between July 1950 and July 1953, 3,621 members of the R.C.N. served in the Far East; 22,066 members of the Army; and 803 members of the R.C.A.F. In addition, a number of officers and men from each of the services went to the Korean theatre for short periods during the hostilities, and several hundred Navy and Army personnel served more than one tour of duty. In the months since the armistice in July 1953 to March 31, 1954, 5,324 members of our armed forces proceeded to the Far East for the first time. This means that since July 1, 1950, a total of 31,814 Canadian officers and men have served with the United Nations Force in the Far East.

24. Such figures, however, give only a partial picture of the valuable combat and operational experience gained by the members of all three services. Today, a considerable number of these veterans who have proven themselves in action are serving with the Mobile Striking Force in Canada and with the 1st Canadian Infantry Brigade Group in Germany; others are performing instructional duties, and still others are available in the event of an emergency.

25. As at March 31, 1954, a total of 564 orders, decorations and medals have been awarded to the officers and men of the Canadian forces for gallantry or outstanding service in the Far East.

26. Canadian casualties in the Korean hostilities, terminating with the truce on July 27, 1953, totalled 1,653. See table on page 10.

#### **(b) North Atlantic Treaty**

27. The North Atlantic Council met in Paris in ministerial session from December 14 to 16, 1953. The council reaffirmed its conviction that peace and security must be the permanent aims of the North Atlantic Treaty Organization. It recognized that the increasing strength and unity of the North Atlantic powers have proven to be decisive factors in maintaining peace and preventing aggression. Nevertheless, the threat to the Western World remains and member countries must be ready to face a continuance of this threat over a long period.

28. Accordingly, it was recognized that the first priority of member nations in the military field should be to keep at the highest possible level the present forces in being and to maintain these forces with up-to-date equipment over a prolonged period. This means that the defence programmes of the nations concerned must be organized to maintain adequate defences for an indefinite period. Such long term commitments as are now envisaged raise important military and financial problems, and considerable effort will be required to continue the maintenance of NATO forces with modern equipment and to keep these forces at an adequate state of readiness.

## CANADIAN CASUALTIES IN KOREA

to the cessation of hostilities, July 27, 1953

—	Killed in Action	Officially Presumed Dead	Died of Wounds	TOTAL FATAL BATTLE CASUALTIES	Missing	POW (all returned)	Wounded in Action*	Injured in Action*	TOTAL BATTLE CASUALTIES	Ordinary Deaths	TOTAL
<i>Navy—</i>											
Officers.....	1	.....	0	1	.....	.....	0	0	1	0	1
Men.....	1	.....	1	2	.....	.....	9	1	12	6	18
	2	.....	1	3	.....	.....	9	1	13	6	19
<i>Army—</i>											
Officers.....	8	0	3	11	.....	2	56	3	72	2	74
Men.....	248	15	35	298	.....	30	1,045	98	1,471	88	1559
	256	15	38	309	.....	32	1,101	101	1,543	90	1633
<i>Air Force—</i>											
Officers.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	1
Men.....	.....	.....	.....	.....	0	.....	.....	.....	0	.....	0
	.....	.....	.....	.....	1	.....	.....	.....	1	.....	1
TOTAL.....	258	15	39	312	1	32	1,110	102	1,557	96	1653

\* Navy—"in battle"; Army—in action, i.e. in proximity to enemy. Excludes fatal wounds or injuries.

March 31, 1954



29. On the basis of recommendations in the Annual Review for 1953, which records the progress of NATO efforts, particularly during the past year, the Council adopted firm force goals for 1954, provisional goals for 1955 and planning goals for 1956.

30. The Council noted with satisfaction the intention of the President of the United States to ask Congress for authority to provide information on nuclear weapons to NATO Commanders for purposes of NATO military planning.

31. A report prepared by the Military Committee, consisting of the Chiefs of Staffs of the member nations, indicated the considerable progress that has been achieved in various NATO exercises in the past year, particularly in the adoption of standardized procedures and methods. Great progress was noted by the Supreme Commanders in the ability of personnel from the fourteen nations to work together at sea, on land and in the air.

#### *Units for NATO Navy*

32. An important part of the R.C.N. is available to act immediately with other fleet units under NATO, as noted in paragraph 17 above. In addition, Canada arranged to hand over to France on April 7, 1954, the first four of six new 140-foot coastal minesweepers, which were allocated, from Canada's offers of Mutual Aid, to France on the recommendation of the NATO Standing Group.

33. Canadian warships taking part in exercise "Mariner" were the light fleet aircraft carrier *Magnificent*, the cruiser *Ontario*, the destroyer escort *Algonquin* and the frigates *La Hullose* and *Swansea*. Exercise "Mariner" involved the largest gathering of warships and aircraft of the navies and air forces of NATO nations yet assembled and took place from September 16 to October 4, 1953.

#### *Army*

34. Since November 1951, Canada has maintained a Brigade Group in Germany in fulfilment of Canada's commitment to the armies of the NATO Integrated Force in Europe. The 1st Canadian Infantry Brigade Group, which is part of the recently formed 1st Canadian Infantry Division, relieved the 27th Canadian Infantry Brigade Group in Allied Command, Europe. The new Brigade is quartered in four camps recently constructed for the occupancy of Canadian troops in the Soest area in Western Germany. The tour of duty in Europe for all army personnel of the Brigade Group is now two years.

35. Before returning to Canada last autumn the 27th Canadian Infantry Brigade Group was singled out for favourable mention by the Commander of Northern Army Group for its battle-worthiness displayed in "Grand Repulse", a large scale exercise of two weeks duration.

36. The formation of the 1st Canadian Infantry Division involved forming divisional headquarters and two brigade headquarters. A number of smaller ancilliary units required to complete the division have also been authorized.

#### *Air Force*

37. During the last week of August 1953, No. 4 Fighter Wing flew from Canada to its base at Soellingen (Baden-Baden) in Germany, thus completing three months ahead of schedule Canada's air contribution to NATO of an air division of four wings comprising twelve squadrons of F-86E Sabre aircraft. Nos. 2, 3 and 4 Wings are now firmly established at their permanent bases on the continent at Gros Tenquin, Zweibrucken and Soellingen, respectively. Construction of the fourth airfield at Marville in France is well advanced, and before the end of 1954 it will be ready to receive No. 1 Wing, which is now based at North Luffenham, England.

38. The Canadian Air Division Headquarters has been established at its permanent base at Metz in France. The construction of the air material base at Langar, England has been completed.

39. Large and small scale anti-submarine training exercises, ice reconnaissance patrols in the Arctic, and routine training made up the major portion of the R.C.A.F. Maritime Reconnaissance Squadrons flying programme during 1953. These Maritime Squadrons provide long range aerial protection to shipping operating in the Western Atlantic. In February 1953, No. 405 Squadron operated out of Jacksonville, Florida, while participating in a NATO sea-air training exercise.

40. With forces from eight other NATO Nations, Nos. 404 and 405 Squadrons from Greenwood, N.S. and No. 407 Squadron from Comox, B.C. participated in exercise "Mariner". These squadrons operated out of Greenwood, N.S.; Torbay, Nfld.; and St. Eval in Cornwall, England.

#### *Training for NATO*

41. On March 31, 1954, a total of 1,004 pilots and 1,757 navigators from Belgium, Denmark, France, Italy, the Netherlands, Norway, Portugal, Turkey and the United Kingdom had been trained in Canada for NATO under arrangements made in 1950. An additional 929 trainees are currently undergoing training. Canada has agreed to train up to 1,200 aircrew for NATO during each of the next three years.

42. In addition to technical training, instruction in English is provided for NATO trainees who arrive in Canada with an inadequate knowledge of English for effective participation in flying training.

#### *Equipment for NATO*

43. The supply of military equipment and materials to other members of NATO forms a significant part of the Canadian contribution to the common defence. Under the Canadian Mutual Aid Programme, offers of

finished military equipment are made to NATO as a whole through the Standing Group; offers of components and materials for manufacture of military items are made through the NATO Secretariat. These bodies are asked by Canada to recommend allocation of these offers to individual NATO nations. The allocations recommended are normally accepted by Canada, and the equipment is then offered formally to the designated nations through diplomatic channels. This procedure insures that equipment offered by Canada is transferred to the nation or nations best able to use it to the advantage of the whole organization.

44. Mutual Aid offers to date have included armament and ammunition, aircraft and engines, military transport vehicles, etc., from existing stocks; walkie-talkie radio sets, 155 mm. howitzers, No. 4 Mark 6/2 radar sets, ammunition and explosives, minesweepers, F-86E Sabre and Otter aircraft from new production. Deliveries of this equipment have been made to nine of the thirteen other NATO nations and will be made to eleven member nations during the coming fiscal year.

45. During earlier years equipment transferred to NATO nations was mainly from existing stocks. In 1953-54, however, large quantities of equipment in current production for the Canadian forces were delivered to NATO nations. During 1954-55 the greater part of deliveries will be of equipment in current production.

46. The transfer of this equipment assists our NATO allies in building up their forces and at the same time has the advantage of supporting production facilities in Canada.

47. During the past two years Canadian production of F-86E Sabre fighter aircraft has been continued at a high level. In addition to Canadian requirements, a number of these aircraft were purchased by the United States and their fine record in Korean combat operations has been highly satisfactory. The transfer of over three hundred Sabre jet fighters to the United Kingdom was completed in 1953-54; about 70 per cent of the total cost of these latter aircraft was contributed by Canada as Mutual Aid and the balance was contributed by the United States for the supply of engines and other installed equipment manufactured in that country.

48. Canada has also recently offered to NATO over 150 additional F-86E Sabre Fighters, together with spare parts and spare J-47 jet engines, and several hundred J-47 jet engines in addition to those offered with the aircraft. Fifty-four of the Sabre fighters with spare parts and engines were included in the Mutual Aid Programme for the fiscal year 1953-54; the remainder of this material is included in the Programme for the fiscal year 1954-55.

### *Contributions to the Military Costs of NATO*

49. The North Atlantic Council has agreed that the costs of certain projects of military construction, known collectively as "NATO Common Infrastructure", and the peacetime operating and capital costs of certain



NATO Military Headquarters shall be shared in common by the member nations of NATO. Canada contributes to these common costs in accordance with agreed cost-sharing formulae.

50. The headquarters which are financed in common by NATO include Supreme Headquarters, Allied Powers in Europe (SHAPE), Supreme Allied Command, Atlantic (SACLANT), Channel Command, and certain of their subordinate commands. The degree to which the costs of individual headquarters are shared in common is determined by the North Atlantic Council and depends upon the extent to which the particular headquarters is international in scope and function. Pay and allowances of military personnel serving with NATO headquarters are not included in the common costs, but are paid by the country contributing the personnel. An annual budget is submitted for each eligible headquarters and is approved by the Council. Expenditures are controlled by the NATO Military Budget Committee which is responsible to the Council and on which all nations are represented.

51. NATO Common Infrastructure consists of projects of military construction necessary for the efficient operation of NATO forces in war-time which either are for the common use of forces of more than one nation, or by their nature cannot be considered the responsibility of any one nation to provide. Programmes are approved by the North Atlantic Council. Projects approved for common financing to date include airfields, signals-communications facilities, war headquarters, pipelines for the supply of jet fuel to airfields, naval bases facilities and others. Land and certain other facilities for Common Infrastructure projects are supplied free of charge by the country in which the projects are located, the host country. Construction is the responsibility of the host country and costs of construction are reimbursed to the host country by the contributing countries in accordance with the cost-sharing formula applying to the particular programme, and on the basis of estimates submitted quarterly to a committee on which all nations are represented, the Payments and Progress Committee, and approved by it. The North Atlantic Council has recently agreed to a system of international competitive bidding for infrastructure projects.

52. The two airfields in France allocated to Canada for use by the R.C.A.F. are part of the NATO Common Infrastructure Programme. The costs of facilities at these airfields are financed in common, up to the agreed operational standard, including runways, taxi strips, hangars, operational buildings and communications. Additional facilities including personnel accommodation, for which requirements vary between nations, are paid for by Canada as the country using the airfields. Canadian forces also share with the forces of other NATO nations the use of facilities such as jet fuel pipelines, signals-communications, etc.

53. The two airfields in Western Germany allocated to Canada form part of NATO Common Infrastructure Programmes for military planning



purposes, but are financed as part of the contribution of the Federal Republic of Germany to Western Defence. Capital facilities for use of the Canadian Infantry Brigade Group in Germany are also financed from the German contribution to Western Defence. The costs of operation and maintenance are paid by Canada.

54. The financial implications of the appropriations for Mutual Aid and the military costs of NATO are dealt with under Part IX, Defence Appropriations.

### *Standardization*

55. Favourable progress is continuing in various fields of the Military Standardization Programme originated under NATO in 1950. This includes standardization of tactical doctrines and logistics procedures as well as certain operational equipment.

56. The requirements for future standardization between the NATO countries and the value of agreements already made were demonstrated in NATO exercises held during the year, such as "Mariner" and "Grand Repulse".

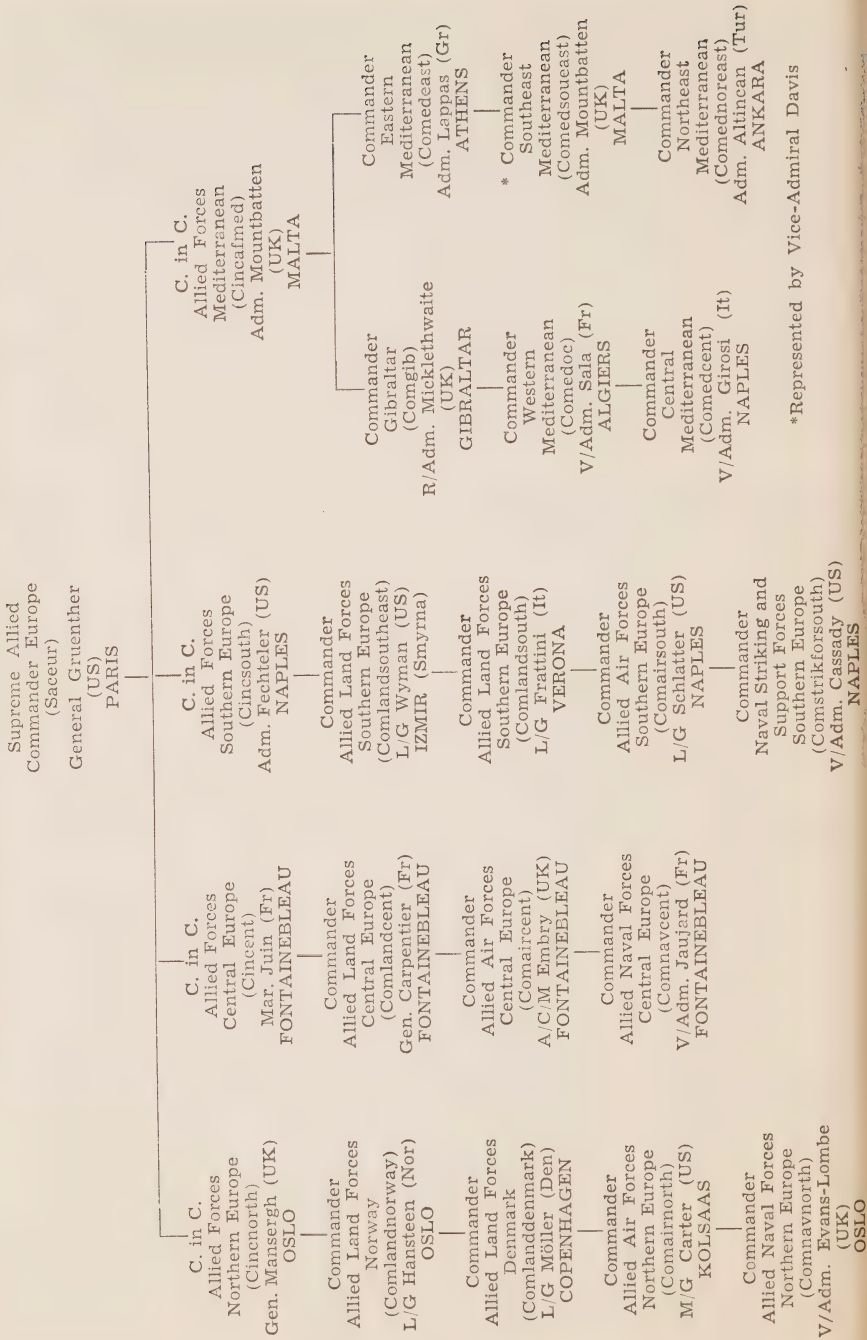
57. A highly important achievement in standardization was described in the announcement made by Canada's Minister of National Defence in Paris on December 15, 1953. Belgium, Canada, France, the United Kingdom and the United States have agreed to adopt as standard small arms ammunition the .30 calibre (7.62 mm) small arms round and the NATO Council has approved that this round be standard for NATO. At a meeting held in Ottawa in the latter part of January 1954, representatives of the five countries mentioned above drafted for their governments' agreement technical specifications to ensure that such cartridges manufactured by the various countries will be interchangeable.

58. In this connection a number of Belgian designed FN .30 calibre self-loading rifles are being obtained for extensive tests under Canadian conditions, particularly in winter and arctic conditions. Preparations are being made so that if this rifle is accepted by Canada as the standard infantry weapon, production of the rifle can be commenced in Canada without loss of time. In January of this year the government of the United Kingdom announced that the Belgian rifle has been adopted as the standard weapon for infantry use for their troops; subsequently, the Belgian government made a similar announcement on their adoption of the FN rifle.

### **Arrangements Made for Canadian Troops Abroad**

59. Units of the Canadian Armed Services are stationed abroad in the territories of four countries in Europe and two countries in the Far East. Ships of the R.C.N. operate from bases in Japan; R.C.A.F. Fighter Wings are based in France, Germany and the United Kingdom

# PRINCIPAL HEADQUARTERS, ALLIED COMMAND EUROPE



and the R.C.A.F. airlift operates to Japan; Canadian Army units are stationed in Germany, Belgium, Korea and Japan. In all, there are today nearly 20,000 Canadian troops abroad in seven different countries. Moreover, the considerable number of their dependents already abroad is steadily increasing. Accordingly, arrangements are being completed to deal with the legal status, supply and accommodation of these forces and, as appropriate, of accompanying dependents.

### *Legal Status*

60. Canada's ratification of the NATO Status of Forces Agreement, entered into by Canada and other NATO nations at London on July 19, 1951, brought that agreement into effect from February 27, 1953, as among Canada, the United States of America, France, Belgium and Norway. The Netherlands and Luxembourg have since ratified the Agreement and, hence, it is now also operative as between those countries and Canada. Under the Agreement, Canadian troops stationed in one of these countries, while remaining amenable to the criminal courts of that country, may alternatively be tried by Canadian military tribunals. The Agreement contains provisions enabling a determination to be made as to which country has the primary right to exercise jurisdiction. In certain cases of peculiarly Canadian concern, Canada is vested with the primary right to exercise jurisdiction. In addition to the provisions respecting the criminal jurisdiction, the Status of Forces Agreement ensures that certain privileges are extended to our forces, such as the importation of supplies and other goods for the exclusive use of the forces free of duty and the exemption of service vehicles from local registration requirements. The status of Canadian forces stationed at present in France and Belgium is covered by this NATO Agreement.

61. The legal status of Canadian forces stationed in the United Kingdom is at present defined by the Visiting Forces (British Commonwealth) Act 1933 of the United Kingdom. It is expected that when the United Kingdom does ratify the NATO Status of Forces Agreement, the Visiting Forces Act, 1952, of the United Kingdom will be proclaimed. The new Act will formally implement the provisions of the NATO Agreement and will determine the status of Canadian forces in the United Kingdom. In the meantime, the United Kingdom is to a large extent giving administrative effect to the NATO Agreement.

62. In Germany the legal status of Canadian forces is governed by Law 69 of the Allied High Commission which extends to them the status and privileges of the forces of the occupying powers—the United Kingdom, France and the United States. By virtue of this status Canadian forces in Germany carry with them their own Code of Service Discipline and members of our forces are subject to trial by Canadian military tribunals. German courts have no criminal jurisdiction over members of the Canadian Forces and may exercise jurisdiction in civil matters only with the consent of one of the occupying powers. Certain privileges also accrue to the forces on such matters as importation of goods and exemption from other forms of German taxation.

63. Canadian forces are not, however, stationed in Germany as "Occupying Forces" but are there as part of the defence forces of the North Atlantic Treaty Organization. When the occupation period comes to an end, the status of the forces stationed in Germany will be determined by the general provisions of the conventions between the three occupying powers and the Federal German Republic, signed at Bonn on May 26, 1952. Negotiations are now being carried on to provide further for the Canadian forces during the post occupation period.

64. In Korea, the legal status of Canadian forces is determined by international law and by working arrangements. The United Nations Unified Command has negotiated an agreement with the Japanese government giving the United Nations forces stationed in Japan the same status, insofar as criminal and civil jurisdiction is concerned, as they would have if the NATO Status of Forces Agreement were applicable. This agreement applies to Canadian units stationed in Japan.

65. Since early in 1953 members of the forces proceeding to France or Germany were permitted to have their families transported to Europe at public expense, subject to certain conditions as to the probable duration of their stay and availability of living accommodation. Dependents in France receive certain benefits under the NATO Status of Forces Agreement. In Germany their status and privileges under the laws of the Allied High Commission are the same as have been conferred upon members of the Canadian Forces. One of the amendments made by the Canadian Forces Act, 1954, makes it possible for dependents accompanying Canadian servicemen abroad to be tried according to Canadian law.

### *Supply*

66. Logistic support for Canadian forces stationed abroad presents special problems and various arrangements have been made to take advantage of established supply channels, thus keeping at a minimum the additional overhead that would otherwise be necessary.

67. R.C.A.F. units stationed in France, Germany and the United Kingdom are supplied with items from Canadian sources through the Air Materiel Base at Langar in the United Kingdom. Ammunition, petrol, oil and lubricants, and rations for these units are obtained through U.S.A.F. supply channels on a repayment basis, except that in the United Kingdom ammunition, petrol, oil and lubricants are obtained through supply channels of the United Kingdom. Supplies purchased locally in France or Germany are for the most part procured by agreement through French purchasing agencies in France and in the French Zone of Germany.

68. Units of the 1st Canadian Infantry Brigade Group, stationed in Germany and Belgium, are for the most part supplied through the British Army supply line. The United Kingdom is reimbursed for supplies provided from British sources. For items supplied to the Canadian forces by the British Army from German sources, Canada makes direct payment to the West German Government, which in turn credits the United



Kingdom share of the occupation costs budget. For items obtained by the Canadian forces from Belgian sources, payment is made by Canada to the suppliers.

69. Units of the 25th Canadian Infantry Brigade Group, stationed in the Far East, are supplied through two supply lines. Items in common use by the Canadian and the United States forces are obtained from the United States Army on a repayment basis. Items in common use by the Canadian and other forces in the 1st Commonwealth Division are obtained through the Commonwealth supply line, with all maintenance supply costs incurred by the Commonwealth ground forces shared by Australia, Canada, New Zealand and the United Kingdom, within the Korean Operations Pool Account, by percentage apportionment related to the establishment strength of national components.

#### *Accommodation*

70. Accommodation for Canadian forces in foreign countries has been provided by rental, by construction or, in some instances, has been made available free of charge except for maintenance costs. Canada has endeavoured to avoid owning real property for Canadian forces abroad. Where Canada has paid, in whole or in part, for construction, land has been provided free of charge by the host nation and it has been agreed that fixed installations will become the property of the host nation when Canadian forces have ceased to use them.

71. The airfields allocated by NATO to the R.C.A.F. Air Division in France and Germany have been provided in accordance with the principles outlined in paragraphs 52 and 53 above. The R.C.A.F. Air Division Headquarters at Metz in France is being constructed by the French on land provided free of charge and is paid for by Canada. Accommodation for the R.C.A.F. Fighter Wing at North Luffenham has been provided free of charge by the United Kingdom with Canada paying only the costs of maintenance, as this is a permanent R.A.F. station being used temporarily by the R.C.A.F. pending completion of the new station at Marville, France. The Air Materiel Base at Langar, being a permanent establishment specially built to meet a Canadian need, has been constructed at Canadian expense with the United Kingdom providing the land free of charge.

72. Units of the 1st Canadian Infantry Brigade Group in Germany are accommodated in four new camps near the towns of Soest, Werl and Iserlohn. These camps are financed as part of the contribution of the Federal German Republic to the common defence. They are being made available to Canada without charge except for the costs of maintenance. Arrangements have been made with Belgium to rent accommodation in the vicinity of Antwerp for the administrative units of the 1st Canadian Infantry Brigade Group. Other arrangements with Belgium and the United Kingdom provide for the storage of Canadian supplies and the accommodation of small Canadian base units at a British military base, also

in the Antwerp area. To meet the requirements of the Canadian Army at this base, some new construction has been necessary for which Canada will pay part of the cost. Storage facilities for the Army are also provided in the United Kingdom at British bases.

73. In Korea the necessary buildings and installations are requisitioned through an agency of the Commonwealth Division. The costs of maintenance for these buildings are paid for through the Commonwealth Korean Operations Pool Account. In Japan, the R.C.N. makes use of Commonwealth and United States base facilities at Sasebo and Kure. The Army uses camp and training facilities at Kure for reinforcement and administrative units of the 25th Canadian Infantry Brigade Group and the R.C.A.F. makes use of base facilities at Tokyo. Under the Agreement recently concluded with Japan on the status of United Nations Forces stationed there, facilities which are owned by the Japanese government and used by Canadian forces are made available free of rental and similar charges.

#### *Married Quarters and Additional Facilities*

74. Under an arrangement with the Federal Republic of Germany, 1402 family quarters, schools containing 65 classrooms and 2 recreation centres are being constructed for the 1st Canadian Brigade, as well as 800 family quarters and schools containing 36 classrooms for the R.C.A.F. in Germany. For a period of five years Canada will pay an annual rental for the use of these buildings equal to 10% of the capital costs. After five years, rents will be at the local prevailing rate. Construction has been started and it is expected that the project will be completed by the end of fiscal year 1954-55.

75. Arrangements have been made for the provision of 1014 family quarters and schools containing 39 classrooms for the two Wings and the Headquarters of the Air Division in France. These buildings will be constructed, owned, served and maintained by a French corporation and Canada has guaranteed rentals at fixed rates for a period of five to ten years. This project is scheduled to be completed by the autumn of 1955.

76. The camps in Germany and France at which the Canadian forces are located are provided with canteens, gymnasia, theatres, sports fields and tennis courts. Plans are underway for the provision of other facilities, including a number of chapels, shopping centres, artificial ice hockey rinks, bowling alleys and swimming pools.

77. In Korea, a recreation centre of temporary construction is being built in the area occupied by the 25th Canadian Infantry Brigade. The facilities include a sports centre for outdoor sports, an outdoor auditorium, a theatre for movies and stage shows, canteens, and a handicraft shop. The Army has also established a low-power radio station which began operating on December 31, 1953, and which broadcasts recordings of Canadian programmes sent to the station every week by the CBC, as well as Canadian news items which are cabled daily. Initial reports indicate satisfactory reception of these programmes by R.C.N. ships at sea in Korean

waters. Canadian personnel in Korea and Japan have leave facilities at the Maple Leaf Club in Tokyo, at Commonwealth leave centres in Japan at Ebisu and Kure, and at U.S. leave centres in the Kobe-Osaka-Kyoto area. During the past year five concert parties have been sent from Canada to the Far East as Canada's contribution to a Commonwealth programme designed to provide concert entertainment twice a month for the troops there.

## RESERVE FORCES

### *Navy*

78. The total strength of the Royal Canadian Navy (Reserve) was 5,014 as at March 31, 1954. A new command was established during the year past to administer and train the R.C.N. (R) and plans are now in progress to increase the total strength of the naval reserve. The post of Commanding Officer Naval Divisions was set up with headquarters at Hamilton, Ontario, replacing the Director of Naval Reserves at Naval Headquarters. Ten ships were operated as tenders by naval divisions. These were: 1 *Algerine* class coastal escort, 2 auxiliary minesweepers and 1 gate vessel, for training in Atlantic and Pacific coastal waters; and 6 Fairmile motor launches for training on the Great Lakes.

79. Three Naval Reserve Air Squadrons, the first in our peacetime history, were organized during 1953. Located in Toronto, Kingston and Victoria, these squadrons are tenders to the naval division in the area and provide training for air and maintenance crews of the Reserve.

80. Each naval division, commanded by an R.C.N.(R) officer, has been allocated responsibility for specialized training in one of the various phases of naval activity: Gunnery, Torpedo Anti-Submarine, Seaward Defence, etc. Regular force officers and men are provided to assist with the administration and training of each division. In addition to their ordinary training, officers, men and wrens of the R.C.N.(R) may perform special duty and continuous naval duty as required, taking the place of regular force officers and men where vacancies exist in the complement.

### *Army*

81. As at March 31, 1954, the total strength of the Canadian Army Reserve Force was 46,506. Equipment used for Reserve Force training purposes continues to be pooled under general officers commanding commands and is allotted from the pool to the Reserve Force units at their local headquarters. This arrangement permits a reduction in the amount of equipment on charge, in maintenance costs, and in the need for storage space.

82. Major exercises in which units of the Reserve Force participated were exercise "Buffalo IV", a divisional exercise in Western Command; and exercise "Tailwind". Personnel of the Canadian Rangers took part in exercise "Bulldog", conducted in the western sub-arctic for units of the Mobile Striking Force.



83. An additional subcomponent of the Canadian Army Reserves, known as the Canadian Army Regular Reserve, was authorized in December 1953. The purpose of the Regular Reserve is to provide a means for quickly expanding the Active Force in an emergency. The new Reserve is open to soldiers with good records who have recently served with the Active Force. They are required to train, normally with their former units, for not more than 21 days each year and are available for recall for full-time service in the event of an emergency. Full consideration will be given to arranging the period of training at a time suitable to the man and his employer.

84. With a view to increasing the effectiveness of the Reserve Army under gradually changing conditions, a study of its organization and functioning has been under consideration for some months. In this connection, with the concurrence of the Minister of National Defence, a three-man committee of distinguished soldiers, Maj.-Gen. Howard Kennedy, C.B.E., M.C., Maj.-Gen. H. F. G. Letson, C.B., C.B.E., M.C., E.D., Maj.-Gen. E. J. Renaud, C.B., C.B.E., E.D., has completed a tour of a large number of reserve units and has submitted a confidential report to the Chief of the General Staff. It is anticipated that a number of conclusions will be announced in the near future.

#### *R.C.A.F.*

85. The total strength of the R.C.A.F. Auxiliary, as at March 31, 1954 was 5,440. They are members of fighter and light bomber squadrons forming part of the air defence organization. They also include members of radar and other groundcrew and technical units. Reserve units from all parts of Canada participated in exercise "Tailwind".

86. In the Primary Reserve an additional 1,200 aircrew and groundcrew officers are given annual training designed to facilitate their speedy assumption of assigned roles in the Active Force upon mobilization.

87. The Reserve Tradesmen Training Plan (Basic) was introduced in 1953 to produce more and better trained R.C.A.F. Reserve tradesmen. Evening and summer training was taken in 1953 by 1487 members of the Primary Reserve. Over 50 per cent obtained Group 1 trade grouping. On completion of their basic training, these trainees may transfer to the Auxiliary or Supplementary Reserve, or remain in the Primary Reserve for further training.



## PART III

### MANPOWER

88. On March 31, 1954, there were 112,529 men and women in the active forces of the three services. This is 2·4 times the total of our active forces at the outbreak of hostilities in Korea.

89. The following table gives the recruiting and wastage figures for the fiscal years 1951-52, 1952-53 and 1953-54.

	<i>Navy</i>	<i>Army</i>	<i>Air Force</i>	<i>Total</i>
Strength March 31, 1951 .....	11,082	34,986	22,359	68,427
1951-52				
Enrolments .. .. .	3,834	22,385	12,651	38,870
Wastage .. . . .	1,411	8,093	2,399	11,903
Net Increase .. . . .	2,423	14,292	10,252	26,967
Strength March 31, 1952 .....	13,505	49,278	32,611	95,394
1952-53				
Enrolments .. . . .	3,662	10,204	11,825	25,691
Wastage .. . . .	1,621	11,024	4,013	16,658
Net Increase .. . . .	2,041	820 <sup>(1)</sup>	7,812	9,033
Strength March 31, 1953 .....	15,546	48,458	40,423	104,427
1953-54				
Enrolments .. . . .	3,565	10,469	10,365	24,399
Wastage .. . . .	2,156	8,949	5,192	16,297
Net Increase .. . . .	1,409	1,520	5,173	8,102
Strength March 31, 1954 .....	16,955	49,978	45,596	112,529

<sup>(1)</sup> Decrease

#### Employment of Active Forces as at Dec. 31, 1953.

##### NAVY

Units for NATO, Korean force and defence of coastal waters .. . . .	5,900	
Training staffs and trainees .. . . .	6,200	
Commands and administration .. . . .	1,500	
Dockyards and bases .. . . .	3,300	
		16,900

##### ARMY

Units for NATO, Korean force and defence of Canada .. . . .	28,000	
Training staffs and trainees .. . . .	8,500	
Commands and administration .. . . .	3,000	
Service units .. . . .	10,500	
		50,000

**Employment of Active Forces as at Dec. 31, 1953—Conc.****AIR FORCE**

Units for NATO, Far Eastern airlift and defence of Canada .....	14,800	
Air transport, search and rescue .....	4,100	
Training staffs and trainees .....	19,900	
Commands and administration .....	2,100	
Service units .....	4,700	
		<hr/> 45,600
Total .....		<hr/> 112,500

NOTE: The above figures include ROTP Cadets and Apprentices

*Women*

90. As at March 31, 1954, there were 6,383 women in the active and reserve forces of the three services. Of the 3,480 women in the active forces 69 were in Navy, 167 in Army and 3,244 in Air Force, while of the 2,903 women in the reserve forces 856 were in Navy, 1,349 in Army and 689 in Air Force.

91. The R.C.A.F. continues to recruit women for the regular force for clerical, stenographic, radar, telecommunications and other duties. Except for nursing and other allied services and a few key personnel, the Navy and the Army continue to recruit women for the reserve forces only.

*Civilian Employees*

92. Classified civilian personnel of the Department of National Defence and personnel of the Defence Research Board of a similar classification employed by the Department, as at March 31, 1954, totalled 30,068, an increase of 4,601 since March 31, 1953. The increase has largely resulted from filling established positions which were vacant at March 31, 1953. Included in this figure of 4,601 are 133 additional appointments in the Inspection Service to cope with increased production.

93. In addition, 20,936 prevailing rate employees were employed in dockyards, camps, depots, air stations, and on construction projects, as at March 31, 1954.

**Officer Production**

94. During the past year no basic changes have been made in the methods of qualifying officers for the Active components of the three services.

*Navy*

95. The R.C.N. has, however, recently instituted a method of selecting and training officers along lines already in effect in the Canadian Army and R.C.A.F. for short service commissions. To be eligible, candidates must have passed their sixteenth but not their nineteenth birthday and have junior matriculation or equivalent. In the first instance appointment

is for seven years. For the first two years these young men will take a course of basic education to fit them for service ashore or afloat as junior officers. Introduced as a further scheme of officer production, this plan is an avenue to permanent status. Cadets who show a desire to make the Navy their career may later obtain permanent commissions if they have the necessary qualifications.

### *Canadian Services Colleges*

96. As before, cadets were accepted into the Canadian Services Colleges at two levels of entry: successful students of senior matriculation or equivalent level were selected for Royal Military College and Royal Roads, and others who had completed junior matriculation or equivalent were selected for Collège Militaire Royal de Saint-Jean. There were 171 senior matriculants and 126 junior matriculants selected. Altogether there were over 1,300 applications for 297 vacancies at the three services colleges, by far the largest number yet received. What is even more striking is that of these, over 1,100 were from candidates for commissions in the regular forces under the Regular Officer Training Plan.

97. Approximately 90 per cent of the cadets entering the three colleges were enrolled under the terms of the ROTP, for the regular forces, the remainder entered as cadets of the reserves in all three services.

### *ROTP*

98. Under the arrangements of the Regular Officer Training Plan, students who meet service enrolment standards and agree to serve in the regular forces for at least three years after they qualify as officers, are sent either to the Canadian Services Colleges or to a Canadian university at public expense.

99. Successful candidates are enrolled as subordinate officers in the service of their choice and, in addition to receiving free tuition, are supplied with books, instruments, uniform clothing and subsistence allowance where applicable. Their rate of pay as subordinate officers is \$55 per month until they are qualified to proceed to full duty with their service.

100. An outline follows of the various methods of qualifying officers:

#### *All Services*

1. The Regular Officer Training Plan through Royal Military College, Royal Roads, Collège Militaire Royal de Saint-Jean and most Canadian universities, as set forth above.
2. Financial assistance during the last two years for medical and dental students who agree to serve for five years after graduation.
3. University Training Plans for Reserves, i.e., UNTD, COTC and RUS which also qualify students for the regular forces upon graduation.
4. Candidates from the ranks are eligible to attend the Canadian Services College or to proceed under a university plan. All other ranks are examined with a view to selection for a commission.

*Navy*

1. Three-year short service appointments in the regular force are available to officers of the reserve Navy.
2. Five-year short service appointments for aviation duties are available to applicants who have had previous aircrew experience. To be eligible the candidate must be a commissioned officer of the R.C.N.(R) or an ex-officer of the Royal Canadian Navy or of a navy of the British Commonwealth or of the R.C.A.F. and must have attained "wings" standard.
3. Seven-year short service appointments for aviation duties are available to men of the R.C.N., the R.C.N.(R) or other young men direct from civilian life. To be eligible a candidate must be unmarried, over 18 years and not have reached his 23rd birthday (in the case of a serving candidate, his 24th birthday) by the first of January of the year of selection.
4. Seven-year short service appointments are also open to young men in all branches of the R.C.N. except the medical, chaplain and electrical branches. To be eligible, a candidate must be from 16 to 18 years of age, unmarried and of junior matriculation standard or equivalent.

*Army*

1. Short service commissions are open to active force men in the ranks who have reached trained soldier standard and who have junior matriculation or equivalent and are promoted to officer cadets and trained at corps schools. From May 1951 to September 1952, this plan was offered to junior matriculants direct from civilian life. This latter phase was an emergency measure which provided 237 officers mostly for the non-technical corps.
2. Members of the Command Contingent COTC who qualify through the Method B course are eligible for short service commissions.
3. Commissions as classified officers are offered to Senior Warrant Officers and NCOs who are suited to fill certain specified vacancies.
4. Officers who served in the Second World War, having special qualifications and of appropriate ages, are eligible for certain appointments.

*Air Force*

1. Aircrew candidates between the ages of 17 and 24 inclusive who have junior matriculation and the other required qualifications are accepted for training with the rank of Flight Cadet. Later they are eligible for regular commissions in competition with other short service applicants.
2. Aircrew candidates with university degrees who meet all other qualifications and are between the ages of 17 and 24 inclusive are accepted for training with the rank of Flight Cadet and are given regular commissions.
3. Aircrew and groundcrew veterans under 35 years of age are eligible for short service and regular commissions to fill certain vacancies for which they are qualified.
4. Other ranks are eligible for promotion to commissioned rank provided that they have at least 10 years' experience, hold the rank of Flight Sergeant or higher, and have held the highest grouping in their trade.
5. Candidates under 30 years of age who possess a university degree or equivalent are eligible for commission for non-flying duties.



## Officer Candidates in Training at March 31, 1954.

Canadian Services Colleges	R.C.N.	Army	R.C.A.F.	Total
ROTP .....	115	214	190	519
Reserve Cadets .....	36		67	103
COTC .....		94		94
Other .....	2		7	9
Universities				
ROTP .....	60	148	158	366
UNTD, COTC, RUS .....	1,053	1,703	997	3,753
Other .....	21	98	46	165
Other Plans .....		1,427	519	1,946
Total .....	1,287	3,684	1,984	6,955

NOTE: "Other Plans" comprise command contingents of COTC in the Army and Flight Cadet aircrew trainees in the RCAF.

## Active and Reserve Units and Establishments

## Navy

101. There are now forty-five Royal Canadian Navy shore establishments in full time operation. In addition to Headquarters in Ottawa, these include the Flag Officers on each coast, the Naval Commander in Newfoundland and the Commanding Officer Naval Divisions; also, training establishments, manning depots, supply depots, magazine and armament depots and naval radio stations. Additional training facilities for naval aviation have been obtained from the Royal Canadian Air Force at Summerside, P.E.I. There are also twenty-two naval divisions and three reserve squadrons training naval reserves and carrying out recruiting duties.

## Army

102. The steady growth of the Canadian Army during the past three years has made possible the formation of the 1st Canadian Division, announced by the Minister of National Defence in October 1953, with headquarters at Petawawa. The Division consists of the 1st Canadian Infantry Brigade (now in Europe), the 2nd Canadian Infantry Brigade (formerly the 25th Canadian Infantry Brigade Replacement Group) which will be stationed at Edmonton during the winter and at Camp Wainwright for summer training, and the 3rd Canadian Infantry Brigade with headquarters at Valcartier. A Canadian Guards Regiment, consisting of four battalions, has also been created and is included in the 1st Canadian Division. The 25th Canadian Infantry Brigade Group, on duty in Korea, and the Mobile Striking Force in Canada are not part of the new Division.

103. At March 31, 1954, the Canadian Army had 441 Active Force units in Canada and abroad. Of this number, thirty-five units were on active service in the Far East theatre, thirty-six units were serving in Europe, and 370 units were in Canada. In addition to the above, the Reserve Force and Supplementary Reserve of the Canadian Army consisted of 622 units.

*Air Force*

104. At March 31, 1954, the R.C.A.F. operated 143 regular major formations and units, including wings, stations, squadrons, flying schools, ground and operational training units, supply depots and radar units. In addition there were seventy-one smaller regular units, such as ground observer corps, security and recruiting units, and eighty-five reserve units.

*Three Services*

105. The three services have staffs on six joint services or tri-service establishments, which include the Royal Military College of Canada at Kingston, Ontario; Royal Roads, near Victoria, B.C.; and Le Collège Militaire Royal de Saint-Jean at Saint-Jean, Quebec. In addition, each of the services is represented on the Joint Staff establishments in Washington and London.

106. One or more reserve elements of each of the three services are represented at thirty-seven universities and colleges across Canada. The University Naval Training Division (UNTD) is represented at twenty-five universities and colleges; the Canadian Officers Training Corps (COTC) at thirty-one; and the Reserve University Squadrons (RUS) at thirty-five.

## PART IV

### TRAINING

107. Training in the armed forces is designed to serve two main purposes. On the one hand, large scale operational exercises, as noted in Part II above, are carried out by the services, separately and collectively, in order to give both officers and men the operational experience necessary to meet the rigorous demands of modern warfare. On the other hand, modern warfare, like modern industry, requires an increasing proportion of personnel possessing special technical qualifications. Since enlistments do not provide all the men with a high degree of technical ability required by the services, and since highly specialized training is needed in some cases, each of the services conducts technical training programmes on a large scale and, in a very real sense, these programmes increase the overall and long-run ability of our country to meet the growing demands of our technological age.

#### *Navy*

108. During the period April 1, 1953 to March 31, 1954, the strength of the R.C.N. was increased by 221 officers and 1,188 men. H.M.C.S. *D'Iberville*, the training establishment at Quebec for preparing French-speaking new entries for naval careers, has continued to operate in a most satisfactory manner. During the period April 1, 1953 to March 31, 1954, 342 new entries passed through this establishment. The R.C.N. continues to operate five training establishments for the regular forces.

109. During the summer of 1953, 1,965 reserve personnel received training afloat and ashore. In addition to the training of officers, men and women at the coasts, 260 new entries underwent training at the Great Lakes Training Centre at Hamilton, Ontario. Two gate vessels were placed under the operational control of the Commanding Officer Naval Divisions to provide training afloat for the new entries. These ships were in addition to those allocated to Naval Divisions as tenders, as noted in paragraph 78 above.

110. The Naval Technical Apprenticeship Training Plan, now in its second year of operation, was undertaken to provide a steady flow of tradesmen to the technical branches of the navy. In January 1953, 62 young men with an educational standard of Grade X or higher began a 39-month course as naval apprentices aboard H.M.C.S. *Cape Breton*. This escort maintenance ship, formerly H.M.C.S. *Flamborough Head*, has been specially refitted to provide apprenticeship training facilities. At the end of March 1954, there were 101 naval apprentices undergoing technical training.

## *Army*

111. The Army has continued to train replacements for the Brigade Group in Korea and is now maintaining that brigade and the Brigade Group in Europe in a state of operational readiness. This has necessitated the training of an average intake of about 700 recruits per month and the operation of large training camps.

112. The development of the Camp Gagetown training area in New Brunswick is proceeding satisfactorily. It is intended to conduct field training under bivouac conditions during the summer of 1954.

113. The Apprentice Training Programme, which commenced in January 1953 to train soldier apprentices in specific trades, has continued as planned. The total number of young men now taking this training at selected corps schools throughout Canada is 452. The next intake is planned for September 1954.

114. Unit and formation training has been conducted to prepare troops for the defence of Canada and, as necessary, for service abroad. A concentration of units for training in normal operations was conducted at Camp Wainwright during the summer months. Training of Active Force personnel on United States pattern anti-aircraft weapons is in progress. This is being extended to the Reserve Force.

115. There are to be concentrations of brigade groups for collective training at Camp Wainwright and Camp Gagetown during the summer of 1954. A signal exercise will be conducted by Headquarters 1st Canadian Infantry Division at Camp Borden in 1954, in which the Divisional Headquarters, Headquarters 2nd and 3rd Canadian Infantry Brigades, Headquarters of supporting arms and services, and signals units will participate.

## *Air Force*

116. The R.C.A.F. air training program reached its planned peak in 1953-54. Late in the year the station at Summerside, P.E.I., which had been used for navigator training on an interim basis during the peak NATO build-up, was transferred to an operational role.

117. The training programme for non-aircrew officers produced 525 graduates in the year 1953-54. The programme will continue as planned.

118. Tradesmen training produced 7,150 graduates for the Air Force in 1953-54. Major construction projects for the trade schools are now virtually complete. With the planned training capacity now in existence, current requirements for basically trained airmen should be met in the majority of trades by late 1955-56. As regards advanced training, the numbers of mobile training units have been increased, supervisor training has been introduced, and it is expected that advanced supervisor trade training will be commenced as the basic training programmes reduce to attrition level.



119. The Reserve Tradesmen Training Plan, instituted in 1953-54, has developed satisfactorily and is expected to train about 2,250 young men in 1954-55. Approximately 450 technical and non-technical officers and 475 aircrew officers enrolled under the Regular Force Training Plan and University Reserve Training Plan will receive training during the summer of 1954 in addition to their part-time instruction concurrent with their under-graduate academic training.

120. Major items of training aids equipment were delivered during the 1953-54 fiscal year, and these deliveries will continue during 1954-55. This equipment includes C-11 Electronic Instrument Flight Trainers; T-33 and C-119 Aircraft Systems Trainers. In addition, the prototype Sabre Flight Simulator has been accepted and a contract has been let for the development and production of a number of Canuck Flight Simulators. Contracts have also been let for the production of Sabre and Canuck Aircraft Systems Trainers.

## PART V

### CONDITIONS OF SERVICE

#### *Career Officers*

121. Most officers enter the Canadian Armed Forces as career officers and after training at one of the Canadian Services Colleges or at a university, enter the Services to serve indefinitely at the Queen's pleasure. In each Service there are compulsory release ages for officers, according to age and rank; when a career officer reaches the compulsory release age for his rank, he may be retired on pension.

#### *Short Service Officers*

122. Not all officers enter the Services as permanent career officers. Depending upon the requirement, the Services grant short service commissions to officers who serve for specified periods. The Navy offers former wartime officers, or reserve officers on the active list, short service commissions for three years; with junior matriculation standing young men joining the Navy may enter the air branch for five or seven years, or most other branches for seven years. The Army offers short service commissions for periods of three, four or five years. Officers entering the medical or dental branches may serve for six or seven years. The Air Force offers short service commissions for five years to young men with senior or junior matriculation standing. Short service officers may later be granted permanent commissions if their service has been commendable and if vacancies exist. Reserve officers may also be called out for short periods of duty on occasions when there is a vacancy which cannot be filled by a regular officer.

#### *Men*

123. The normal period of enlistment for men in the Navy is five years. For the first enlistment in the Army, a man may elect to serve for three or six years; and all subsequent enlistments are for the same periods. Similarly, the Air Force offers three- or five-year periods for a first enlistment; normally subsequent enlistments are for five-year periods, though in the case of an airman who enlisted originally for three years and who subsequently is selected for advanced training or for a transfer overseas involving the movement of his dependents, re-enlistment for a two-year or a five-year period is optional.

#### *Technical Apprentices*

124. The Navy enlists as technical apprentices young men who have reached their 16th but not their 19th birthday; the enlistment is for seven years. The Army enlists technical apprentices who have reached their 16th but not their 17th birthday for a period of seven years; at the end of five years, such apprentices may elect to be released if 120 days notice is given.

### *Married Quarters*

125. As at March 31, 1954, there were 15,052 completed permanent married quarters provided in Canada for the personnel of the three services. This is an increase of approximately 2,000 units since March 31, 1953. An additional 720 units are under contract for construction. It is intended to proceed as quickly as possible with the construction of a further 3,804 units. Accordingly, permanent married quarters built or under construction total 19,576. There are some 2,272 temporary and emergency married quarters still being used. The Department of National Defence and Central Mortgage and Housing Corporation are together investigating the provision by private interests of upwards of 3,000 housing units at various urban locations across the country; 132 units are already under construction at Cobourg.

126. Included in the permanent married quarters being provided in Canada are 1,523 which are of a design that facilitates conversion into barracks for the accommodation of servicemen, should an emergency require. In addition to the married quarters in Canada, 3,216 units are being provided for married personnel of the 1st Canadian Infantry Brigade Group in Germany and the 1st Canadian Air Division in France and Germany.

### *Education of Dependents*

127. The Department of National Defence now operates fifty-two primary schools in Canada at units where civilian facilities are not available. These schools employ 544 civilian teachers and are attended by approximately 13,750 students. In all provinces service schools are operated to provincial standards and in accordance with arrangements worked out with provincial authorities.

128. On completion of plans now being implemented eight schools will be in operation for the children of Canadian servicemen serving in France and Germany. These schools will be operated to standards set by the Department of National Defence and will be based on the civilian practice in Canada.

### *Transportation of Dependents*

129. On April 17, 1953, the Minister of National Defence announced in the House\* that transportation would be provided for dependents of service personnel in the United Kingdom and Europe as an important step to improve the welfare of our troops abroad. Consequently, an officer or man serving for at least two years with an operational unit in the United Kingdom or Europe may now store his furniture and effects and move his dependents abroad at public expense, providing that his Commanding Officer is able to certify that suitable accommodation is available at a cost within the man's means. Approximately \$1,875,600 has been provided in the 1954-55 estimates for transportation of dependents to the United Kingdom and Europe.

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\*House of Commons Debates, April 17, 1953, p. 4063.

*Pay and Allowances*

130. The post-war rates of pay and allowances established for the Armed Forces were based on the concept that they should be related to civilian salaries and wages having regard to the conditions peculiar to military service. Upward adjustments to service pay and allowances have been made from time to time on this principle, the last being made on December 1, 1953.

131. The current monthly rates of pay and allowances are shown in the table on page 35. The rates of pay for Ordinary Seamen under 17 years of age, Privates under 17 years of age and Aircraftsmen 2nd class under 17 years of age, shown in that table, apply to Regular Force personnel only. Ordinary Seamen, Privates and Aircraftsmen 2nd class, including those under 17 years of age, are entered into the Reserve Forces at the full rate of pay for those ranks.

132. Members of the Canadian Army Regular Reserve, the recently formed additional subcomponent of the Canadian Army Reserves, are paid an annual retaining grant of \$100 upon completion of each year's service with the Canadian Army Regular Reserve provided they attend the annual training prescribed. When called out for annual training with the Active Force, members of the Canadian Army Regular Reserve are entitled to pay at the basic rate for their rank or classification and trade group in addition to the annual retaining grant. If training is in excess of fourteen days, married men are also entitled to Separated Family's Allowance.





## PART VI

### DEFENCE RESEARCH

133. The Defence Research Board's research and development efforts continue to increase as facilities are improved and scientific staff strengthened. Research will continue generally at the present level but there will be some increase in the development effort. This increase comes as a result of success in the prototype stage in many phases of armament development. The appropriation sought for 1954-55 is \$50,400,000, an increase of \$8,000,000 over the year 1953-54. The research portion of the appropriation remains the same, with the additional \$8,000,000 being required in connection with the recently announced decision to proceed with the development of a new fighter aircraft and its armament.

134. Cooperation between the Defence Research Board and the armed services has steadily grown in effectiveness. By far the greater part of the total effort of the Defence Scientific Service is now in direct support of plans and requirements of Canada's armed services. The Defence Scientific Service provides scientific and technical guidance to members of the Navy, the Army and the Air Force at all levels.

135. The Board continues to concentrate its scientific effort on problems which are of specific interest to Canadian users and for which Canada has unique resources or facilities. At the same time, close liaison is maintained with the United States and the United Kingdom on all phases of defence research and development, thus assuring a strong and unified effort.

136. The long term construction programme for housing all laboratories in permanent buildings is now well past its peak. New and adequately equipped buildings are now provided for all the laboratories, except those at the Suffield Experimental Station and the Pacific Naval Laboratory; at the last two stations construction is proceeding to provide suitable accommodation. This year has seen the completion and opening of new laboratories at the Defence Research Kingston Laboratory, Barrie-field, Ontario; the Defence Research Chemical Laboratory, Ottawa, Ontario; the Radio Physics Laboratory of the Defence Research Telecommunications Establishment, Shirley Bay, Ontario; and the Defence Research Medical Laboratory, Downsview, Ontario.

137. All of the Board's major projects undertaken for the Services have progressed markedly during the year. Considerable advances have been achieved in the field of early warning systems for hostile aircraft; the guided missile development is progressing favourably and the results of the initial series of launchings have been encouraging. The fruits of several years' efforts have been rewarded with the successful development of a Canadian anti-tank weapon. Work continues in the fields of naval, arctic and medical research and valuable contributions continue to be made to civilian and service needs.

138. The programme of research grants and contracts with Canadian universities continue to be sponsored by the Defence Research Board. In most fields the scale of expenditure is beginning to level off. The aim of the programme is to give continued support to selected research workers with particular competence and interest in defence fields. In all, some three hundred grants are awarded annually. Throughout the past year the Board has continued to make use of the facilities of a great many agencies other than its own laboratories for the conduct of research and development for the services.

## PART VII

### EQUIPMENT

#### *Equipment and Stores Contracts*

139. During the fiscal year 1953-54, approximately 138,000 contracts were placed by the Department of Defence Production for defence equipment and stores, amounting to over \$913 million.

#### *Naval Equipment*

140. Since the commencement of the naval expansion programme, contracts have been placed or are in the course of negotiation for 88 new ships and auxiliary craft, including 5 gate vessels completed during 1952-53. Also included are an aircraft carrier, escort vessels, minesweepers, a northern patrol craft, inner patrol craft and a number of auxiliary vessels.

141. A total of five escort vessels were launched by March 31, 1954, with nine more to be launched during 1954-55. H.M.C.S. *Labrador*, a northern patrol craft, has commenced preliminary trials which are to be completed this summer. Thirteen of the fourteen coastal minesweepers have been launched, six of which have been completed and the remaining eight will be completed by the end of the year. Six additional coastal minesweepers will be built to replace vessels which have been offered and allocated as part of Canada's contributions to Mutual Aid; construction will commence during the summer of 1954. Seven auxiliary craft have now been completed.

142. The refitting, conversion and modernization programme for destroyers, frigates and minesweepers is well underway. Conversion to destroyer escorts has been completed for five "Tribal" class and one "Algonquin" class destroyers; the modernization of three frigates has also been completed; and all these ships have been recommissioned. The modernization of thirteen more frigates is to be completed during the year; three of these are to be recommissioned and the remainder are to be placed in reserve at Sydney, N.S. The conversion to coastal escorts has been completed for eighteen "Bangor" minesweepers and these ships are in reserve at Sydney. The similar conversion of two diesel "Bangors" has been completed and the ships have been recommissioned; the conversion of a third ship of this class is to be completed in the near future.

143. The completion of the aircraft carrier H.M.C.S. *Bonaventure*, which is being carried out by Harland & Wolff, Belfast, Northern Ireland, is progressing satisfactorily.

144. Negotiations have been started toward providing replacement for existing types of aircraft operated by the R.C.N. The present fighter, the piston-engined "Sea Fury", will be replaced by the "Banshee", a jet fighter. The anti-submarine search and attack aircraft, the Grumman "Avenger", will be replaced by the twin piston-engined Grumman S-2F.



145. The production in Canada of key items of armament, ammunition, electronic equipment and propulsion machinery is proceeding satisfactorily.

#### *Army Equipment*

146. New types of vehicles, weapons, and other equipment for the Canadian Army are now being received in quantity from Canadian production. This production programme includes wheeled vehicles of both commercial and military types, guns of various calibres, mortars, rocket launchers and ammunition. A Canadian short range walkie-talkie radio set has been produced and has been taken into use by the Army. A companion set of longer range is coming into production and it is anticipated that it will be available to the Army in mid-1955.

147. The Canadian Army is now equipped with the British Centurion tank and orders have been placed for a British type of armoured scout car. Some of these scout cars are now being received and will be in use in 1954. The Army is also developing a new tracked carrier for the infantry. While it is anticipated that vehicles of this type for use by the Canadian Army may be produced in this country, careful consideration is being given to designs of infantry carriers in the United Kingdom and the United States.

#### *Air Force Equipment*

148. A. V. Roe (Canada) Limited has completed delivery of the Canuck (CF-100) Mk 3 aircraft and delivery of the Mk 4 version has started. The Canuck is powered with the Canadian designed and built Orenda engine and will include a new type of autopilot which will be coupled to the fire control system. This permits more accurate attack procedures than is possible with a manually controlled aircraft. Certain tests are now being conducted and, if they are successful, this aircraft may be fitted with a new type, heavier calibre gun for use in conjunction with air-to-air rockets.

149. Canadair Limited of Cartierville, near Montreal, is making deliveries of Sabre 5 (F-86) aircraft with the Orenda Series 10 engine, according to schedule. The latest model, the Sabre 6, also has an airframe similar to that of the American built F-86E but will be powered with the Orenda Series 14 engine. It will be superior in performance to the Sabre 5. Sabre 5 and 6 aircraft will meet R.C.A.F. commitments overseas and will eventually replace the Sabre 2s which are now flown operationally by the R.C.A.F. Air Division in Europe.

150. Production of the Silver Star (T-33) Jet Trainer by Canadair Limited is meeting schedule and delivery of this aircraft is now well advanced. The Silver Star is used to convert not only R.C.A.F. but also NATO pilots from reciprocating to jet aircraft.

151. The two DeHavilland Comet jet aircraft delivered to the R.C.A.F. are presently undergoing modification, as recommended by the manufacturer.

152. Arrangements have been made to obtain a number of Lockheed Neptune (P-2V7) maritime reconnaissance medium range aircraft and delivery is expected to commence towards the end of this year. Steps have been taken to have produced in Canada the Britannia maritime reconnaissance long range aircraft. These two new types of aircraft will be used by Maritime Reconnaissance Squadrons in lieu of Lancasters.

153. Delivery of six Piasecki H-21A helicopters is expected in the summer of 1954 and they will be used for search and rescue operations.

154. A total of 432 aircraft have been overhauled, repaired, converted or modified by contractors during the past year. This figure includes Canucks, Sabres, T-33's, Vampires, Mustangs, North Stars, C-119's, Dakotas, Expeditors, Mitchells and Harvards.

#### *Mobilization Stores*

155. The policy in respect of providing equipment and stores against the possibility of rapid mobilization in a total effort is to stockpile only those hard or soft goods which it would not be possible to obtain in the quantities needed by the time they were required.

156. The mobilization stockpile of soft goods is virtually complete. Progress has been made throughout the past year toward accumulating a stockpile of ammunition, weapons and equipment required upon mobilization.

## PART VIII

### CONSTRUCTION

157. The total number of major construction contracts undertaken for the Department of National Defence during the period April 1, 1953 to March 31, 1954 supervised by other agencies totalled 523 and were valued at \$75,798,905. Of these 523 contracts, fifty-one were in excess of \$250,000 and had an aggregate total of \$37,074,175. During the same period major construction contracts undertaken and supervised by the Department of National Defence totalled 59 and were valued at \$3,871,318.

#### *Navy*

158. The Seaward Defence Base was completed at Halifax, N.S., with the exception of buildings, and that at St. John's, Nfld., will be completed in the spring of 1954. Tenders have been called for the project at Esquimalt, and plans are being prepared for a Seaward Defence Base at Sydney, N.S.

159. New barracks blocks have been completed and occupied in the R.C.N. Air Station at Dartmouth, N.S. and in the naval barracks at Esquimalt. Construction of a new officers' quarters in the barracks at Halifax is well advanced.

160. The construction of the Naval Supply Depot at Ville La Salle, P.Q., has been completed, except for the administration building, and the Gunnery Range at Osborne Head near Halifax has been substantially completed. A Diesel Workshop has been completed at Esquimalt. Power supplies for the wharves in Halifax, Esquimalt and Sydney have been increased.

161. Construction is progressing well for the new ammunition depot at Rocky Point, B.C., and for the new laboratory and administrative areas of the depot at Bedford Basin, N.S. Other projects under construction include electrical workshops at Esquimalt; a new Gun Mounting Shop and Torpedo Shop and the R.C.N. Air Station, all at Dartmouth, N.S. Contracts have been let for a new Maritime Warfare School in Halifax and an armament depot at Longueuil, P.Q. Tenders have been called for a supply school at Ville La Salle and a new supply building for the barracks at Esquimalt.

#### *Army*

162. New permanent construction to provide accommodation, training facilities and services adequate for the needs of the peace time Canadian Army continues to be undertaken at many locations.

163. At the Camp Gagetown development in New Brunswick contracts have been awarded for the clearing and grubbing of the camp site and certain training areas, and for the grading of main access roads. A sizeable labour force will soon be employed as contracts are let for the construction of utilities and buildings. Construction will be active for the next three years.

164. Construction is well advanced at Edmonton, Winnipeg, Montreal and Cobourg to provide for warehouses, supply depots and similar facilities. At the Cobourg Ordnance Depot work is now largely completed as far as the six warehouses, central heating plant, administration buildings and the initial 25 married quarters are concerned. The Depot was opened officially on October 30, 1953.

165. Designs are well advanced for the provision of barracks, messes, training and administration buildings, and services which have been approved to provide home station accommodation for units and Regimental Depots at Edmonton, Calgary, Winnipeg, Petawawa, London and Valcartier. Contracts have already been arranged for additional construction at London and Valcartier.

#### *R.C.A.F.*

166. The construction programme of the R.C.A.F., initiated following the outbreak of hostilities in Korea, is now approaching completion. This is reflected in a sharp reduction in the number and value of contract awards for construction projects.

167. During the past year approximately 490 completed buildings and other works (excluding married quarters) were accepted by the R.C.A.F. from construction agencies. In addition, the development of runways has been completed at: Comox, B.C., Saskatoon, Sask.; Gimli, MacDonald, Portage la Prairie and Winnipeg, Man.; North Bay and Uplands, Ont.; Bagotville and Val D'Or, P.Q.; Summerside, P.E.I.; and Greenwood, N.S. These completions accounted for the greater part of the high priority construction requirements of the R.C.A.F.

168. Major projects recently commenced include a building to house the military component of the Canadian Embassy in Washington, D.C., the construction of two new R.C.A.F. stations in the Province of Quebec, additional domestic accommodation at Namao, Alberta, and extensive development of the existing aerodrome at Torbay, Newfoundland.

169. For the 1st Canadian Air Division in Europe, construction has been completed as follows: a headquarters near Metz, France; fighter bases near Grostenquin in France and near Zweibrücken and Baden-Soellingen in Germany. Work is now underway at a fourth fighter base near Marville, France.



## PART IX

### DEFENCE APPROPRIATIONS

170. The 1954-55 Estimates of the Department of National Defence amount to \$1,908,000,000, a decrease of \$92,795,000 from the 1953-54 appropriation of \$2,000,795,000, but an increase of about \$68,000,000 over forecast expenditures from the 1953-54 appropriations. However, including net charges to Special Accounts referred to in the next paragraph, the estimated cash disbursements of the Department for the fiscal year 1954-55 are \$2,010,000,000, which is an increase of \$208,000,000 over forecasted gross disbursements for 1953-54 of \$1,802,000,000.

171. Under the Defence Appropriation Act, 1950, a Special Account was established to which is credited the value of equipment transferred as Mutual Aid to members of the North Atlantic Treaty Organization, from stocks acquired by the Navy, Army or Air Force before March 31, 1950. The National Defence Act also provides for a Special Account which is credited with the sale price of service equipment sold to other countries. These Accounts are used for procurement of capital equipment and materiel for the Services. It is estimated that charges to these Accounts in the fiscal year 1954-55 will total \$137,000,000 and credits from transfers of equipment as Mutual Aid will total \$35,000,000 resulting in a net charge of \$102,000,000. The Estimates of \$1,908,000,000 plus this net charge to the Special Accounts of \$102,000,000 results in estimated cash disbursements of \$2,010,000,000. Details are provided in tables on pages 44, 54 and 55.

172. Transfers of equipment as Mutual Aid also include equipment procured for the forces since April 1, 1950. In accordance with the procedure established last year, the value of this equipment is not credited to the Special Account, but instead is credited to the Service expenditures for the year in which the transfer is made. The value of these transfers in 1954-55 is estimated at \$152,603,000, and deductions totalling this amount have been made from the Service Estimates, in order to arrive at the amounts to be voted.

173. The Mutual Aid Estimate for 1954-55 includes provision of \$58,900,000 for NATO aircrew training. This training is conducted by the R.C.A.F. in conjunction with regular R.C.A.F. training, and the details of the R.C.A.F. estimates for 1954-55 include the estimated cost of NATO training for the year. The Mutual Aid Appropriation will be charged with the cost of NATO training during 1954-55, and a corresponding deduction will be made from R.C.A.F. expenditures. Consequently the gross R.C.A.F. estimate for 1954-55 is reduced by the estimated amount of this credit. This form of estimate is being commenced in 1954-55 and the comparative 1953-54 estimate details for the R.C.A.F. have been amended accordingly.

### General

174. The following table summarizes by cost category the 1954-55 Estimates, the forecasted expenditure in 1953-54 and the 1953-54 appropriation for the Department of National Defence:

(Thousands of Dollars)

Cost Category	Estimates 1954-55	Forecasted Expenditure 1953-54	Appropriation 1953-54
Military Personnel Costs.....	427,877	406,038	403,965
Equipment.....	851,577	769,522	923,617
Construction.....	184,222	177,788	224,382
Operations and Maintenance.....	546,324	448,217	492,329
Gross Cash Disbursements.....	2,010,000	1,801,565	2,044,293
Add—Mutual Aid Transfers credited to Special Accounts.....	35,000	77,900	40,259
Deduct—Charges to Special Accounts.....	(-)137,000	(-) 39,792	(-) 83,757
Estimates.....	1,908,000	1,839,673	2,000,795

175. The increase in military personnel costs is attributable to the higher rates of pay and allowances which became effective December 1, 1953, and to the continued growth of the strength of the forces. These increased costs are offset in part by somewhat lower estimated expenditures on clothing and medical stores in 1954-55.

176. "Equipment" includes aircraft, ammunition, shipbuilding, tanks, vehicles, armament, electronics, training and miscellaneous technical equipment. The following table contains a breakdown under these headings.

(Thousands of Dollars)

Equipment Items	Estimates 1954-55	Forecasted Expenditure 1953-54	Appropriation 1953-54
Aircraft.....	430,500	425,423	432,824
Ammunition.....	101,535	67,192	116,072
Ships.....	93,000	95,000	94,000
Electronics.....	65,666	67,664	114,799
Vehicles.....	41,981	37,200	48,388
Armament.....	40,133	28,150	55,665
Tanks.....	26,064	8,600	17,810
Misc. Technical Equipment.....	13,821	11,700	15,238
Training Equipment.....	11,500	5,650	8,693
Other Items.....	27,377	22,943	20,128
Totals.....	851,577	769,522	923,617

177. It will be noted that the 1954-55 estimates for procurement of equipment are about \$72 millions less than the estimates for 1953-54, but about \$82 millions more than expenditures forecasted for 1953-54.

The differences between estimates for 1953-54 and probable expenditures for that year result from a variety of reasons. These include the difficulty of forecasting accurately at the time that estimates are prepared, i.e., up to eighteen months in advance, the rate of expenditure on a large number of production programmes in varying stages of development for complicated equipment that is subject to change and modification in order to assure that the end product is the most useful for the job to be done and the money expended. This applies to all types of production but is especially true of contracts which entail quantity production of many components as in the case of electronics, armament equipment and ammunition. As production progresses, rates of expenditure can be estimated with greater accuracy so that the 1954-55 estimate is likely to be considerably better than the 1953-54 estimate.

178. By far the largest expenditures on equipment are for aircraft. While procurement of replacement aircraft for the carrier and the maritime reconnaissance squadrons will be commenced, the total estimated expenditures on aircraft in 1954-55 are virtually unchanged from 1953-54 because expenditures on some of the existing production programmes will decline. In the case of ammunition, increasing deliveries to meet the requirements under NATO obligations will result in higher expenditures in 1954-55 than in 1953-54. This will more than offset the savings on ammunition resulting from the cessation of hostilities in Korea.

179. Estimates of construction costs for 1954-55 are approximately \$40 millions less than estimates for 1953-54, but slightly more than forecasted expenditures for 1953-54. Expenditures on construction for the Army in 1953-54 will be almost \$34 millions less than estimates for that year largely because much of the effort during the year has been in the preparation of plans and specifications. Expenditures by the Army are expected to increase in 1954-55. Construction expenditures for the Air Force, on the other hand, are expected to continue on a downward trend in 1954-55 with the result that over-all expenditures on defence construction should hold about the same level as last year.

180. The estimates for operations and maintenance are \$54 millions more than the estimates for 1953-54 and \$98 millions more than forecasted expenditures for that year. In all services, both larger numbers and higher salary scales will cause increased expenditures for civil salaries. Various other costs will increase due to the growth of the forces, but the major part of the increase in estimates under this heading is to meet the increased costs of operating and maintaining jet aircraft and the radar control systems of the R.C.A.F.

The end of active fighting in Korea does not significantly affect expenditures in the operations and maintenance category as ammunition is the principal item on which savings will be made and this is included under the category of equipment.

*Navy*

182. 1954-55 estimates, 1953-54 forecasted expenditures and 1953-54 appropriations for the Royal Canadian Navy are shown by category in the following table:

(Thousands of Dollars)

Cost Category	Estimates 1954-55	Forecasted Expenditure 1953-54	Appropriation 1953-54
Military Personnel Costs.....	66,848	60,745	62,448
Equipment.....	180,000	146,836	179,086
Construction.....	18,000	15,600	23,803
Operations and Maintenance.....	72,433	66,819	67,019
Totals.....	337,281	290,000	332,356

183. 1954-55 estimates for military personnel costs and operations and maintenance are up over 1953-54 mainly by reason of the growth of the force and higher salary, pay and allowance rates. The increase in 1954-55 in the equipment category is mainly due to expenditures on aircraft to replace existing carrier aircraft. The difference between the 1953-54 estimates and forecast expenditures in that year on equipment results from lower expenditures than estimated on ammunition, electronics and armament. Estimated expenditures on construction in 1954-55 are slightly higher than the probable expenditures in 1953-54, the latter being considerably lower than the amount provided in that year.

184. Expenditures in 1954-55 include an estimated \$12 millions to be charged to the Special Account. Equipment from current production to be transferred as Mutual Aid in 1954-55 includes ships, ammunition, and other equipment to a value of \$21,977,000. The value of equipment transferred will be charged to Mutual Aid and deducted from Naval expenditures for 1954-55.

*Army*

185. 1954-55 Estimates, 1953-54 forecasted expenditures and 1953-54 appropriations for the Canadian Army are shown by category in the following table:

(Thousands of Dollars)

Cost Category	Estimates 1954-55	Forecasted Expenditure 1953-54	Appropriation 1953-54
Military Personnel Costs.....	191,024	193,860	182,878
Equipment.....	142,445	95,986	163,791
Construction.....	53,000	38,000	71,800
Operations and Maintenance.....	120,126	108,263	114,538
Totals.....	506,595	436,109	533,007



186. Military personnel costs for 1954-55 are \$2.8 millions lower than anticipated expenditures in 1953-54, the cost of the military pay increase being more than offset by reduced estimates for clothing and medical stores. Operation and maintenance costs will be higher on a number of items including a larger civilian establishment, higher civil salary rates, and expenditures connected with the married quarters programme in Europe.

187. Estimates for equipment for 1954-55 are about \$46 millions higher than 1953-54 probable expenditure. The 1953-54 expenditures are lower than the estimate for that year in almost all classes of equipment, chiefly in ammunition where deliveries in 1953-54 are substantially less than had been anticipated. In the case of construction, also, the 1954-55 estimates represent an increase over the anticipated expenditures in 1953-54. A number of projects in the Army construction program have been in the planning stage for a considerable time, notably the camp at Gagetown, N.B., and expenditures in 1954-55 on such projects are expected to run substantially above 1953-54 levels.

188. Expenditures on equipment will include an estimated \$90 millions to be charged to Special Accounts. Equipment from current production to be transferred as Mutual Aid in 1954-55 includes ammunition, armament, and other equipment to a value of \$31,992,000. The value of equipment transferred will be charged to Mutual Aid and deducted from Army expenditures.

#### *Air Force*

190. 1954-55 estimates, 1953-54 forecasted expenditures and 1953-54 appropriation for the Royal Canadian Air Force are shown by category in the following table:

(Thousands of Dollars)

Cost Category	Estimates 1954-55	Forecasted Expenditure 1953-54	Appropriation 1953-54
Military Personnel Costs.....	170,006	151,433	158,639
Equipment.....	470,323	470,500	528,707
Construction.....	108,400	116,500	122,303
Operations and Maintenance.....	240,771	185,169	208,370
Totals.....	989,500	923,602	1,018,019

191. The increase in military personnel costs is due to the growth in the strength of the force and higher rates of pay and allowances. Estimated expenditures in 1954-55 on equipment are approximately the same as forecast for 1953-54. Aircraft expenditures are expected to be about \$19 millions lower than probable expenditures in 1953-54 but this is offset by higher estimated expenditures on ammunition, electronics

and training equipment. As stated a year ago, the Air Force construction programme has reached and passed its peak and a further reduction in expenditures is indicated for 1954-55. The major increase in estimated expenditure in 1954-55 is in the operations and maintenance category. This results from higher costs of operating and maintaining jet aircraft, increased expenditures on maintenance of radar installations and larger numbers and increased salaries of civilian employees.

192. Expenditures on equipment in 1954-55 include an estimated \$35 millions to be charged to Special Accounts. Equipment from current production to be transferred as Mutual Aid in 1954-55 includes aircraft, aero engines, ammunition and other equipment to a value of \$98,634,000. The value of the equipment transferred will be charged to Mutual Aid and deducted from Air Force expenditures.

### *Defence Research*

193. The 1954-55 estimate for defence research and development is \$50,400,000, an increase of \$8,400,000 over 1953-54. This is due to increased expenditures on development of equipment, including work on a new all-weather interceptor aircraft.

### *Mutual Aid*

194. Estimated expenditures in 1954-55 for Mutual Aid are \$300,000,000 which compares with an appropriation of \$324,000,000 in 1953-54 of which it is estimated that expenditures will be approximately \$309,000,000. The principal elements of the 1954-55 programme are:

- (a) purchase of military equipment ordered directly for Mutual Aid purposes;
- (b) transfers of equipment from Service stocks or from current production for the Services;
- (c) the continuation of aircrew training for other NATO countries;
- (d) contributions to infrastructure programmes and NATO budgets (portion chargeable to Mutual Aid).

Expenditures on Mutual Aid are analyzed in the tables on pages 52 and 53.

### *Contributions towards Military Costs of NATO*

195. Canada's contributions to the annual budgets of commonly-financed NATO military headquarters and to NATO common infrastructure programmes are made in accordance with cost-sharing formulae which have been agreed to by the North Atlantic Council and which are, of course, subject to the appropriation of the necessary funds by national parliaments.

196. To date the North Atlantic Council has approved four common infrastructure programmes. The 1951 Infrastructure Programme was approved at the Ottawa meeting of the Council in September 1951, and the 1952 Programme at the Lisbon meeting of the Council in February 1952.

The 1953 Infrastructure Programme was approved in two parts, the first part at the ministerial meeting of the Council held at Paris in December 1952, the second part by the Permanent Council in April 1953. The 1954 Programme was approved by the Permanent Council in December 1953. The North Atlantic Council agreed to separate cost-sharing formulae for the 1951 and 1952 Programmes and for the first part of the 1953 Programme. The Council has, however, now agreed to a long-term cost-sharing formula which was applied to the second part of the 1953 Programme and to the 1954 Programme and will be applied to the 1955 and 1956 Programmes when they are approved.

197. The total Canadian contributions to common infrastructure programmes, based on the latest estimates furnished by NATO, are summarized in the table on page 51. Part of these Canadian contributions are charged to Mutual Aid Vote.

### *Travel and Removal Expenses*

198. Travel and removal costs in 1954-55 are estimated at \$43,483,000. This estimate is higher than the 1953-54 Estimate but is somewhat less than the latest forecast of expenditures for 1953-54. The following table summarizes (in thousands of dollars) the main elements that go to make up these costs:

	Estimates 1954-55	Forecast Expenditures 1953-54	Estimates 1953-54
Service transfers and postings including removal expenses of dependents and effects .....	17,011	15,785	14,367
Reinforcement and rotation of overseas forces .....	7,804	9,694	5,280
Transportation on Leave .....	1,705	2,670	4,621
Temporary duty travel .....	10,473	10,870	7,815
Civilian Travel .....	2,477	2,411	2,932
Reserve Forces, Services Colleges, Cadets, etc. ....	4,013	3,266	3,189
Totals .....	43,483	44,696	38,204

199. The decision to move families of members of the forces to Europe, in cases where suitable accommodation is available, has resulted in increased costs. This is in part offset by reduced movements of members of the forces to and from Europe resulting from longer postings.

200. The reinforcement and rotation of overseas forces is estimated to involve moving about 20,000 soldiers and airmen between Canada and overseas units in 1954-55. This volume is less than in 1953-54 and the estimate is lower than the forecasted expenditure for 1953-54.

201. Transportation on leave consists largely of the cost of embarkation and disembarkation leave for personnel serving overseas. The smaller number of moves anticipated between Canada and overseas in 1954-55 results in a reduction in this estimate.

202. Temporary duty covers travel and living expenses of service personnel incurred while away from home stations on business including administrative duties, conferences, lectures, liaison visits, inspection trips and short courses of instruction. This category also covers the living expenses of crews of aircraft away from home stations. The 1954-55 estimate for this category is about the same as the anticipated expenditures in 1953-54. Civilian travel expenses include the travel cost of the civilian administrative staff such as departmental auditors, inspectors, etc.

### *Form of Estimates*

203. In the 1954-55 estimates the requirements for Departmental Administration are shown separately from those of Inspection Services. In previous years they were combined under the heading "Departmental Administration including Inspection Services".

204. The civilian establishments, as detailed in the Civil Salaries and Wages estimates, include both filled and vacant positions, with financial adjustments, where necessary, in respect of vacant positions. Prevailing rate employees are listed in terms of the numbers and cost of positions in each trade; in previous years these positions were reported in bulk for each Service. These changes place the Department of National Defence details for salaries and wages in line with that followed by government departments generally. The Civil Salaries details for 1953-54 have been adjusted to provide comparable information.

205. A change has been made in the presentation of the Mutual Aid Estimates to show the principal elements contained in the programme for 1954-55 and the details for 1953-54 have been amended to conform.



## DEPARTMENT OF NATIONAL DEFENCE

## Canadian Contributions to Infrastructure and NATO Budgets

(Thousands of Dollars)

I—CANADIAN PORTION OF INFRASTRUCTURE PROGRAMME

Approved Infrastructure Programmes	Portion Chargeable To Special Infrastructure Vote	Portion Chargeable To Mutual Aid Vote	Total Canadian Portion of Programmes	Canadian Contribution as a Percentage of Total Programme
1951 Programme.....	9,800	5,400	15,200	%
1952 ".....	17,100	10,100	27,200	4.43
1953 " (1st part).....	9,200	4,600	13,800	5.33
1953 " (2nd part).....	7,500	5,900	13,400	6.00
1954 ".....	10,100	7,800	17,900	7.13
Total Canadian Undertaking.....	53,700	33,800	87,500	.....

II—EXPENDITURES ON INFRASTRUCTURE BY FISCAL YEAR

Fiscal Year	From Special Infrastructure Vote	From Mutual Aid Vote	Total Expenditures
1951-52.....	1,770	.....	1,770
1952-53.....	7,080 (a)	1,198	8,278 (a)
1953-54 (Forecasted).....	11,050	4,050	15,100
1954-55 (Estimates).....	11,000	18,000	29,000
Total Expenditures.....	30,900	23,248	54,148(b)

(a) Expenditures of \$3,307,234 in 1952-53 on ex-infrastructure (i.e. on facilities over minimum SHAPE standards) are not included.

(b) Balance of the approved infrastructure programme not yet provided for in estimates is therefore \$87,500,000 less \$54,148,000 or \$33,352,000.

III—EXPENDITURES FOR NATO BUDGETS BY FISCAL YEAR.

Fiscal Year	From Special Infrastructure Vote	From Mutual Aid Vote	Total Expenditures
1951-52.....	1,749	.....	1,749
1952-53.....	914	938	1,852
1953-54 (Forecasted).....	950	950	1,900
1954-55 (Estimates).....	1,000	1,000	2,000
Total Expenditures.....	4,613	2,888	7,501

## DEPARTMENT OF NATIONAL DEFENCE

## Mutual Aid Programmes\*

Deliveries of Materials and Supplies and NATO Air Crew Training  
Actual and Estimated Expenditures from Inception to March 31, 1954

(Millions of Dollars)

	Belgium	Denmark	France	Italy	Luxembourg	Netherlands	Norway	Portugal	Turkey	United Kingdom	Total
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>TRANSFERS FROM STOCKS—</b>											
Divisional Equipment and Ammunition.....	56.75	10.78	10.88	50.00	..	56.75	..	24.73	3.59	2.22	163.50
Armament.....	5.31	2.48	11.88	29.96	.67	2.59	.55	6.84	3.09	1.08	91.28
Ammunition.....	13.46	1.56	3.71	10.82	.40	6.91	2.60	6.43	3.76	1.92	59.56
Mechanical Equipment.....	.34	.02	11.46	5.46	..	3.85	.87	2.64	.79	.11	27.90
Electronic Equipment**	.23	.12	.32	12.28	..	2.83	.04	.42	..	..	30.40
Aircraft and Engines.....	.21	..	..	..	..	.24	1.18	..	..	.30	2.79
<b>TRANSFERS FROM NEW PRODUCTION—</b>											
Armament.....	.11	..	2.07	1.18	..	.98	..	.10	..	..	2.37
Ammunition.....	.53	.18	..	2.29	..	.66	.15	.33	..	6.04	12.25
Electronic Equipment.....	.84	3.19	.12	6.07	..	3.52	.96	.36	..	12.68	27.74
Aircraft and Engines.....	.14	.14	.98	2.51	..	.28	..	..	.14	103.52	107.71
Ships.....	..	..	19.86	..	..	..	..	..	..	..	19.86
<b>TOTAL VALUE OF TRANSFERS</b>	<b>77.92</b>	<b>18.47</b>	<b>61.28</b>	<b>120.57</b>	<b>1.07</b>	<b>78.61</b>	<b>6.35</b>	<b>41.85</b>	<b>11.37</b>	<b>127.87</b>	<b>545.36</b>
<b>NATO Air Crew Training</b>											
Infrastructure and NATO Budgets.....	..	..	..	..	..	..	..	..	..	..	228.18
Further anticipated expenditures to 31 March 1954***	..	..	..	..	..	..	..	..	..	..	7.14
											85.43
											866.11

\* This statement is based on actual and estimated shipments of materials and supplies to March 31, 1954, and actual and estimated expenditures on NATO Air Crew Training to March 31, 1954. \*\* In the 1953-54 White Paper equipment of this type was included under "Armament".

\*\*\* Includes progress payments on production items, undelivered and unallocated items which are expected to be cleared before March 31, 1954.

**DEPARTMENT OF NATIONAL DEFENCE**  
**Expenditure on Mutual Aid Programmes by Fiscal Year**  
 (Thousands of Dollars)

Elements of Programmes:	Expenditure 1950-51	Expenditure 1951-52	Expenditure 1952-53	Forecast Expenditure 1953-54	Estimate 1954-55
Procurement of Material for Mutual Aid .....		2,930	32,833	33,257	34,497
Transfers of Equipment from Service Stocks:					
(a) Acquired before 31 March, 1950 .....	195,417	74,934	55,414	77,900	35,000
(b) Acquired since 31 March 1950 .....			40,042	118,075	152,603
NATO Aircrew Training .....		48,552	104,628	75,000	58,900
Infrastructure and NATO Budgets (*) .....			2,136	5,000	19,000
<b>TOTAL MUTUAL AID .....</b>	<b>195,417</b>	<b>126,416</b>	<b>235,053</b>	<b>309,232</b>	<b>300,000</b>

(\*) These amounts represent only the portion of Infrastructure costs and contributions to NATO Budgets which is chargeable to Mutual Aid. In addition the following expenditures are applicable to the special Infrastructure vote: 1951-52—\$3,519,000; 1952-53—\$11,302,000; 1953-54 (Forecast)—\$12,000,000; 1954-55 (Estimate)—\$12,000,000.

**DEPARTMENT OF NATIONAL DEFENCE**  
**Comparison of Appropriations and Expenditures**  
(thousands of dollars)

D.N.D. Budgetary Components	1949-50		1950-51		1951-52		1952-53		1953-54		1954-55
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Forecasted Expenditures	
Navy (Cash Disbursements)	73,316	73,400	111,536	99,849	236,051	182,371	208,225	260,296	332,356	290,000	337,281
Army ( " )	124,584	135,740	221,267	231,665	508,342	473,066	549,485	503,390	533,007	436,109	506,595
Air ( " )	147,614	136,376	229,093	230,553	727,632	650,525	871,832	912,710	1,018,019	923,602	989,500
D.R.B.	24,314	22,339	24,915	23,415	32,496	35,394	42,000	42,989	42,000	43,763	50,400
Mutual Aid, Infrastructure and NATO Budgets	—	—	195,417	195,417	165,966	129,935	351,500	246,355	344,600	321,232	312,000
Administration, Pensions, etc.	17,233	16,975	21,382	20,889	43,849	41,772	49,217	48,681	59,381	57,834	60,727
Deduct —Credits to Service Expenditures from: (a) Mutual Aid Transfers of equipment in current production for the Forces	—	—	—	—	—	—	—	40,042	163,215	118,075	152,603
(b) NATO Aircrew Training	—	—	—	—	55,800	48,552	112,522	104,628	81,596	75,000	58,900
—Charges to Special Accounts	—	—	19,886	19,886	49,037	49,037	17,885	(C <sub>7</sub> )12,667	83,757	39,792	137,000
Budgetary Expenditures	387,061	384,880	784,324	781,902	1,600,499	1,415,474	2,001,852	1,882,418	2,000,795	1,839,673	1,908,000



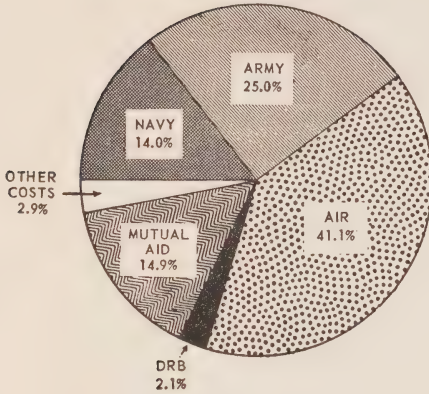
**DEPARTMENT OF NATIONAL DEFENCE**  
**Table of D.N.D. Appropriations and Expenditures by Major Categories**  
(thousands of dollars)

Major Categories	1949-50		1950-51		1951-52		1952-53		1953-54		1954-55
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Forecasted Expend.	Estimates
Military Personnel Costs	141,267	140,495	186,836	184,301	333,295	346,832	437,486	407,148	403,965	406,038	427,878
Procurement of Equipment.....	70,600	65,519	136,390	144,590	671,570	486,212	753,711	718,086	923,617	769,522	851,576
Construction.....	36,732	37,569	77,367	85,820	209,416	173,336	243,834	266,399	224,382	177,788	184,222
Operations and Maintenance Costs	138,462	141,297	208,200	191,660	367,005	333,197	504,386	422,704	492,329	448,217	546,324
Gross Cash Disbursements.	387,061	384,880	608,793	606,371	1,581,286	1,389,577	1,939,417	1,814,337	2,044,293	1,801,565	2,010,000
Add:—Mutual Aid transfers of equipment credited to Special Accounts	—	—	195,417	195,417	77,250	74,934	80,320	55,414	40,259	77,900	35,000
Deduct:—Charges to Special Accounts	—	—	19,886	19,886	49,037	49,037	17,885	(Cr)12,667	83,757	39,752	137,000
Budgetary Expenditures	387,061	384,880	784,324	781,902	1,609,499	1,415,474	2,001,852	1,882,418	2,000,795	1,839,673	1,908,000

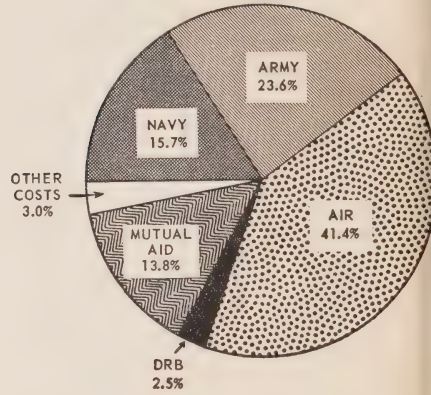
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## BY SERVICES

1953-54

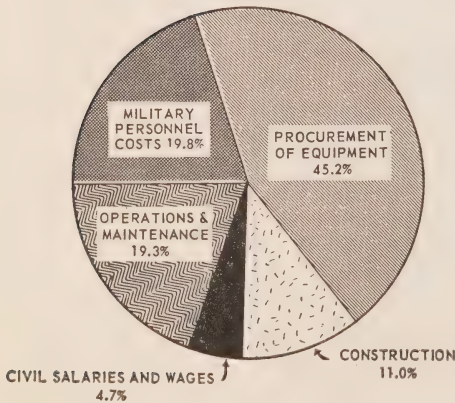


1954-55

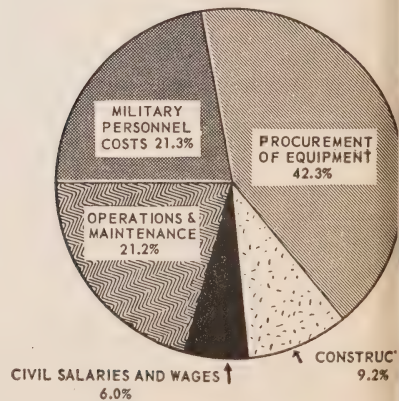


## BY REQUIREMENT

1953-54



1954-55



## PART X

### THREE YEAR PROGRAMME

206. The three-year programme which was announced by the Minister of National Defence in 1951 covers the period April 1, 1951 to March 31, 1954. It is now possible to examine probable expenditures for this period in relation to the \$5 billions forecast by the Minister in February 1951.

207. The following table summarizes by service and by cost category, the actual expenditures incurred by the Department of National Defence in the fiscal years 1951-52 and 1952-53, the probable expenditures in 1953-54 and the total for the three-year period. It will be noted that cash disbursements for the three years (\$5,005,479,000) will be remarkably close to the initial forecast of "about \$5 billion". Total budgetary expenditures for the period are likely to amount to \$5,137,565,000.

(Thousands of Dollars)

Service	1951-52	1952-53	1953-54 (forecast)	3 Year Total
Navy (Gross Cash Disbursements).....	182,371	260,296	290,000	732,667
Army (Gross Cash Disbursements).....	473,066	503,390	436,109	1,412,565
Air (Gross Cash Disbursements).....	650,525	912,710	923,602	2,486,837
D.R.B.....	35,394	42,989	43,763	122,146
Mutual Aid, Infrastructure, etc.....	129,935	246,355	321,232	697,522
Administration, Pensions, etc.....	41,772	48,681	57,834	148,287
<i>Deduct:—Mutual Aid Credits to Service</i>				
Expenditures.....	(-) 48,552	(-) 144,670	(-) 193,075	(-) 386,297
Expenditures from Special Accounts.	(-) 49,037	(Cr) 12,667	(-) 39,792	(-) 76,162
Budgetary Expenditures.....	1,415,474	1,882,418	1,839,673	5,137,565
 Cost Category				
Military Personnel Costs.....	346,832	407,148	406,038	1,160,018
Equipment.....	486,212	718,086	769,522	1,973,820
Construction.....	173,336	266,399	177,788	617,523
Operations and Maintenance.....	383,197	422,704	448,217	1,254,118
Total Cash Disbursements.....	1,389,577	1,814,337	1,801,565	5,005,479
<i>Add:—Transfers of Equipment acquired prior</i> <i>        to March 31, 1950.....</i>	74,934	55,414	77,900	208,248
<i>Deduct:—Expenditures from Special Accounts</i>	(-) 49,037	(Cr) 12,667	(-) 39,792	(-) 76,162
Budgetary Expenditures.....	1,415,474	1,882,418	1,839,673	5,137,565

208. Expenditures on military personnel costs and operations and maintenance costs have increased in keeping with the increased strengths of both service and civilian personnel, higher rates of remuneration and the costs of operating and maintaining increasing numbers of jet aircraft,

radar installations, etc. Annual expenditures in these two categories will continue their upward trend during the period of build-up of the forces in numerical strength and the increased employment of modern equipment.

209. Good progress has been made in the three-year period in the acquisition of modern equipment, particularly in the fields of aircraft, ships and electronics. The need for re-equipment programmes, such as the procurement of new type carrier aircraft and maritime reconnaissance aircraft, indicates that it is unlikely that any significant reduction in expenditures for equipment will take place in the foreseeable future.

210. Construction expenditures have declined from the peak reached in 1952-53 and it appears likely that a lower level will continue in 1954-55 and subsequent years unless, of course, later developments should warrant an expansion in the construction programme which is under constant review.

211. It should again be emphasized that the three-year programme on which Canada, like other North Atlantic nations, was working was fixed at three years largely for planning purposes. Throughout that period defence policies and the defence programme were subject to constant review and revision and that process will continue into the future. Experience over the past three years shows that to maintain the armed forces at the present levels of strength and quality, provide them with suitable working conditions and accommodation, and furnish adequate quantities of up to date equipment could not be carried out except by making appropriations and expenditures at about the present level. Substantial additions to the programme in any one field can only be made if there are compensatory adjustments in some other field.













C.B. Stacey

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# CANADA'S DEFENCE PROGRAMME

1955-56

**HON. RALPH CAMPNEY**

Minister of National Defence

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
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## PART I

### CANADA AND THE INTERNATIONAL OUTLOOK

#### *Defence Objectives*

1. Canada's defence programme continues to be planned for the immediate defence of Canada, for co-operation with the United States in the joint defence of the Canada-United States region, for co-operation within the North Atlantic Treaty Organization looking towards the provision of a collective force capable of deterring aggression, and for carrying out undertakings by Canada as a member of the United Nations Organization.

#### *The Military Outlook*

2. Canada shares with her NATO allies the firm conviction that we must do everything in our power to reduce the possibility of a third world war, and this determination is the more compelling because of the appalling destructive power of thermonuclear weapons. We are convinced that the best way to avoid a war of annihilation is to make plain to any potential aggressor that collectively we have the strength to defend ourselves and that we value our freedoms sufficiently to fight for them.

3. In the years since NATO was formed to ensure that the necessary collective strength would exist, it has become obvious that this strength must include not only conventional forces, trained, equipped, and in the highest possible state of operational readiness, but also thermonuclear weapons and the means of their delivery, together with special early warning and air defence systems to protect strategic bomber bases, and civil defence preparations designed to reduce the disastrous effects of enemy air attack. A central problem in all current military planning is the nature of the balance to be maintained between conventional forces and weapons and those for atomic and nuclear warfare. Changes in this balance are likely to be required at times during the extended period of armed vigilance which now confronts us. In addition, appraisals of new weapons, new tactical and strategic concepts, and demands for increased mobility and flexibility of forces make it evident that changes in emphasis must be made from time to time within the defence programmes of the NATO member nations.

4. Canada will continue to make such adjustments in her defence programme. Current developments in the build-up of air defences on this continent, which are changes of emphasis of this order, enable Canada to make a highly important contribution to NATO as a whole. In co-operation with the United States we are providing additional warning networks and increasingly effective and co-ordinated air defence forces on this continent. By so doing we are of course meeting a common need for

home defence and, beyond that, we are also assisting in the protection of the industrial potential of North America and the retaliatory capacity of the U.S. Strategic Air Force, both of which are of the greatest significance to all nations in the free world in the deterrence of aggression.

### ***Nuclear Bombs and the Future***

5. During the past year the United States has made considerable progress in the production of atomic and thermonuclear weapons. The U.S.S.R., after carrying out hydrogen bomb tests, has indicated that production of a stock-pile of nuclear bombs is underway. More recently the government of the United Kingdom has announced its decision to proceed with the development and production of thermonuclear weapons.

6. It is now clear that a single thermonuclear bomb can be made large enough to destroy a major city and all its inhabitants by direct effects of blast and heat. If such a bomb is exploded close to the ground, it also produces a vast column of radio-active fission products and particles that travel with the winds and settle over a fairly extensive area, i.e., the "fall-out" area. The area immediately under such an explosion would be uninhabitable for several years owing to radio-activity. The effects of radio-activity would lessen progressively down-wind, but would be sufficiently serious to cause disability and even death among people in the open for a distance of more than one hundred miles. Adequate preparation for evacuation and protective cover would substantially limit the number of casualties from "fall-out"; consequently Civil Defence authorities have been giving particular attention to these aspects of the problem during the past year.

7. For North America, the possibility appears for the first time of an attack that could cripple the military and industrial potential of Canada and the United States. Should we ever be attacked with thermonuclear weapons, it is plain that our immediate problem would be national survival. Everyone not directly involved in an urgent military role would immediately be caught up in the problems of rescue, rehabilitation, and the maintenance of essential services.

8. In wars of the past, families, towns and even sizeable communities have been destroyed, but thermonuclear weapons confront us with the possibility that major nations and perhaps the whole of mankind might be wiped out in consequence of a future war. It becomes all the more important, therefore, that we spare no effort progressively to reduce international tension and eventually to eliminate war. At the same time we must ensure that together with our allies we have sufficient military strength to deter any potential aggressor. While the most effective single deterrent today is the certainty of thermonuclear retaliation, we recognize that ultimately peace must rest on more enduring foundations. Meanwhile it is only by combining collective military strength with diplomatic action that we can hope to safeguard our freedoms while working towards a lasting solution of international problems.

## PART II

### DEFENCE AT HOME

#### ***Canada-U.S. Co-operation***

9. The working partnership between Canada and the United States for joint defence has for some time been closely concerned with defence against air attack. The facts of strategy and geography have required that a large number of the installations for this purpose must be located on Canadian soil. By agreement certain of these installations are at present manned by U.S. personnel.

10. Since the Canada-U.S. region is one of the principal strategic areas of NATO, all that has been done in continental defence here flows quite naturally from commitments made under the North Atlantic Treaty. Moreover, in any project carried out in either country, whether by Canada or by the United States, control resides with the authorities of the country in which the operations take place.

11. In the economics of defence, as in many other fields, Canada and the United States are each other's own best customers. During the past several years reciprocal purchases have amounted to about one billion dollars, with the principal items for both countries being aircraft, electronics and communications equipment, and ammunitions and explosives. During the fiscal year 1953-54 Canadian government expenditures on military procurement in the United States amounted to \$106,870,000, while similar expenditures by the United States in Canada totalled \$115,840,000.

12. Co-operation in research and experimental projects is also a feature of Canada's special relations with the United States. For example, following the successful development by the U.S. Army of NIKE, a supersonic ground-to-air guided missile, a number of Canadian Army personnel received special training at a U.S. Army guided missile centre in Texas. In the opening months of 1955 cold weather tests of NIKE were carried out near Churchill, Manitoba, by Canadian and United States personnel.

#### ***Air Defence***

13. Nine regular squadrons and ten auxiliary squadrons of the Royal Canadian Air Force are maintained in Canada to provide fighter aircraft for interception duties. By the end of 1955 all nine regular squadrons will be completely equipped with long-range, all-weather CF-100 jet aircraft. Fighter and fighter bomber auxiliary squadrons have been equipped with a number of T-33 Silver Star aircraft for jet training purposes, and while the training of auxiliary squadron aircrew in aircraft of the more complex types necessarily takes longer than the training of aircrew for regular squadrons, progress has been made. In addition, two auxiliary squadrons are equipped with light bombers and operate, as required, with the Mobile Striking Force.



14. Towards the end of 1954 the Pinetree system, a joint Canada-U.S. project, became operational, i.e., the radar network and communication systems were co-ordinated with interceptor forces under the direction of air defence commands. As a result of further joint planning, Canada has undertaken to construct, finance and operate a second and supplementary warning line, the Mid-Canada line, generally to the northward of settled areas in this country. In this connection aircraft of the R.C.A.F.'s No. 408 Photographic Squadron have practically completed the task of aerial surveys, which involved carrying out 7,800 miles of special aerial photography. Work on the Mid-Canada line is expected to be well underway by the end of the year.

15. Construction of a jointly conceived and planned third warning line, the Distant Early Warning Line, is being undertaken by the United States in the Arctic area between Alaska and Greenland. Canada is contributing such resources of the R.C.A.F. and R.C.N. as can be made available for facilitating the work on the Distant Early Warning Line, and is assisting the United States in organizing and using extensive Canadian civilian resources.

#### ***Ground Observer Corps***

16. The Ground Observer Corps now consists of 80,000 civilian volunteers who man some 5,000 observation posts and twelve filter centres, strategically located across Canada. Organized to detect and report low-flying aircraft, the Corps has become a further valuable element in the air defence system.

#### ***Mobile Striking Force***

17. The Mobile Striking Force consists of Army and Air Force components to deal with possible enemy lodgements on Canadian territory. The Army component consists of airborne infantry battalions and supporting arms. Continuous airborne training is carried out, and much valuable experience is being obtained in winter warfare in particular.

#### ***Royal Canadian Navy***

18. The strength of the fleet, as at December 31, 1954, is set out in the table below. It is anticipated that the number of ships in commission will be increased during the coming year. On the West Coast the 2nd Minesweeping Squadron and a Reserve Training Squadron were formed last year. In the summer of 1954 the R.C.N.'s recently commissioned arctic patrol vessel, H.M.C.S. *Labrador*, became the first R.C.N. ship to sail through the Northwest passage; en route hydrographic and scientific work was carried out. In order to assist in manning the 6th Royal Navy submarine squadron, arrangements were made to train ten officers and 168 men of the R.C.N. in R.N. submarine schools. The squadron is to be based in the Halifax area and will assist in anti-submarine training for the R.C.N.



**Strength of the Fleet—as at December 31, 1954**

<i>Class of Ship</i>	<i>In Commission</i>	<i>In Reserve</i>	<i>Undergoing Conversion</i>	<i>Under Construction</i>
Light Fleet Carrier .....	1	—	—	1
Light Cruiser .....	2	—	—	—
Destroyer Escorts .....	10	—	1	14
Arctic Patrol Ships ....	1	—	—	—
Frigates .....	9	11	1	—
Coastal Escorts .....	4	22	2	—
Coastal Minesweepers ..	8	—	—	6
Patrol Craft .....	—	—	7	8
Miscellaneous Craft ....	13	10	—	3
Repair Ships .....	1	1	—	—
Auxiliaries .....	105	52	—	28

*Notes:*

Auxiliaries include supply ships, diving tenders, harbour tugs, rescue craft, assault craft, survey ships, oil tankers and harbour ferries.

In addition to the above, there are 3 frigates and 6 coastal escorts on loan to other government departments.

19. The Navy operates a total of sixty-nine shore establishments. Of these, forty-seven are full-time R.C.N. establishments and include Naval Headquarters at Ottawa, principal commands at Esquimalt and Halifax, a subsidiary command at St. John's, Newfoundland, a headquarters for the R.C.N. (Reserve) at Hamilton, training establishments, manning depots, supply depots, naval aviation establishments, magazine and armament depots and naval radio stations. The remaining establishments ashore are operated for the twenty-two Naval Divisions of the R.C.N.(R) and are located in Canadian cities from Victoria, B.C. to St. John's, Nfld. In addition, twelve R.C.N. recruiting offices and six mobile recruiting units are maintained.

20. Naval reserve air squadrons were organized during the past year at Quebec City and Calgary, in addition to those formed during 1953 at Toronto, Kingston and Victoria. Arrangements for naval aviation training for reserves at Hamilton and Halifax have been made with the Toronto squadron and the naval aviation station at Dartmouth, respectively.

**Canadian Army**

21. At December 31, 1954, the Canadian Army (Regular) had 402 units activated in Canada and abroad. The Regular Army comprises: the 1st Canadian Infantry Division, consisting of the 1st, 2nd and 3rd Canadian Infantry Brigades; the Mobile Striking Force; the 4th Canadian Infantry Brigade; together with supporting units and a number of static units and installations for the command and administration of the Army as a whole.

22. At the same date there were 486 units in the Canadian Army (Militia), formerly called the Canadian Army, Reserve Force, and twenty-nine units in the Supplementary Reserve. A reorganization of the Militia has resulted in major changes, which include: a redefinition of the role of the Militia, as being "To provide a partially trained force as the nucleus

of units to be brought up to strength in the case of an emergency," the appointment of an adviser on militia matters to the Chief of the General Staff, and the establishment of a new Directorate of Militia and Cadets at Army Headquarters.

23. A major feature of the reorganization has been the instituting of Militia Group Headquarters, which are responsible for control of all units, regardless of type, in their respective areas. This new type of headquarters replaces the brigade and other formation headquarters which, previously, were responsible for specific types of units; in many instances, owing to the distances involved, these headquarters could not be responsible for all units of their formations. The new method makes possible a more efficient organization and better control of all units.

24. The transfer of the anti-tank defence role from artillery to the armoured corps required an increase in armoured regiments and a decrease in artillery units. Some anti-aircraft regiments have been converted to units of other corps. To produce a more balanced structure to meet operational needs, thirteen infantry regiments were either converted to other corps or amalgamated with other infantry units. As field park squadrons were no longer included in establishments of the Royal Canadian Engineers, they were replaced by field squadrons, in localities where strength warranted.

25. In order to assist militia units in their administration work, full-time assistance is being provided on an increased scale.

26. Training standards have been amended to enable a militia soldier to obtain qualification in stages and to receive credit for any stage reached, without lowering the standards. A minimum attendance, equivalent to fifteen days training, is now obligatory before a member of the militia is entitled to receive pay. A new bonus will now be paid to each individual attending summer camp, providing he attends not less than 75 per cent of local unit training, prior to camp period.

27. Unit allowances have been simplified and consolidated to reduce the work involved in book-keeping and units now draw a "contingency allowance" based on \$1.00 for each position on the authorized establishment, \$4.00 for each member completing fifteen days local training during the year and \$5.00 for each member completing six consecutive days camp training. Band grants have increased by 40 per cent; an allowance has been granted for a dress uniform for members of bands.

### ***Royal Canadian Air Force***

28. The remaining squadrons of the R.C.A.F.'s planned total of forty-one have now been organized, and the number of aircraft in service was 2,845 (all types) at December 31, 1954. Twenty-one of these squadrons are for the air defence of Canada and have been noted above, and twelve squadrons are stationed in Europe as the 1st Canadian Air Division. Four squadrons are required for the R.C.A.F.'s transport operations at home and abroad. Three maritime squadrons operate in conjunction with other

forces for the defence of Canada's east and west coasts. No. 408 Squadron is a photographic squadron; in addition to its work in connection with the Mid-Canada line, this squadron flew some 17,500 miles last year carrying out aerial photographic surveys.

29. The R.C.A.F. operated a total of 465 regular and reserve units at December 31, 1954. This includes seven command and group headquarters, forty-one squadrons, and 157 other units such as depots, flying schools, ground and operational training units, self-accounting pay units, search and rescue units, and a considerable number of isolated detachments. A number of regular force personnel were attached for duties with eighty-five reserve units and university squadrons.

### *Co-operation in Civil Defence*

30. The widespread and very serious consequences of air attack with bombs of the latest type unquestionably demand careful reappraisal of all plans for the defence of the civilian population. Such a comprehensive reappraisal by Civil Defence authorities has been underway for some time now and, from the military point of view, in addition to assisting in studies and planning, this involves a continuing reconsideration of how the Armed Forces and the Defence Scientific Service can most effectively co-operate in civil defence at the federal, provincial and municipal levels. The guiding principle in service reassessment of practicable measures under various conditions in a possible full-scale war of the future is that, while it is recognized that the Armed Forces must primarily fulfill their military duties, their preparations should enable all feasible assistance to be given to civil defence organizations, should such action become necessary.

31. For several years the Defence Research Board has been closely concerned with studies in this field and with the development of the means for collecting, measuring and interpreting data about radio-active "fall-out" and contamination. Another important aspect of the Board's work is the study of the probable effects of the most modern weapons on Canadian targets and the determination of what measures can be taken to reduce population casualties. In this connection a civil defence section has been formed in the Board's Operational Research Group.

### *Assistance in Civilian Disaster*

32. Following Hurricane Hazel in October 1954, the Armed Forces provided substantial assistance to Ontario civil authorities during the flash flood disaster. Regular and reserve personnel of the Royal Canadian Navy manned boats from H.M.C.S. *York* and from local Sea Cadet corps, and were otherwise employed in search and rescue operations. Regular and militia troops of the Army carried out a wide variety of tasks from search and rescue to bridge building, as well as providing extensive communication facilities for traffic control. Personnel of the Royal Canadian Engineers were flown from Chilliwack, B.C., by the R.C.A.F. to assist



the Ontario Department of Highways in replacing the washed-out bridges. Regular and auxiliary R.C.A.F. personnel and aircraft carried out tasks including helicopter rescue operations and aerial and ground search for flood victims. All three Services assisted in the provision of stores, such as blankets and clothing.

33. Following Hurricane Edna in September 1954, the Armed Forces assisted Nova Scotia authorities in minimizing the potential loss in the apple orchards. From September 16 to 27, personnel of the three Services were employed at 134 orchard locations and a combined total of 4,760 man-days of work was provided to the Annapolis Valley Growers.

34. In August 1954 the Army provided assistance at the request of the warden of the Kingston Penitentiary during the fire and riots.

### ***Search and Rescue***

35. Although elements of each of the Armed Forces, the R.C.M.P. and other government departments may be called on to assist in search and rescue operations, the R.C.A.F., in accordance with the general practice of nations participating in the International Civil Aviation Organization, is responsible for the co-ordination and supervision of search and rescue activities and for the provision of certain minimum facilities in Canada. This responsibility includes aircraft in distress within the territorial limits of Canada and approaches thereto; ships in distress on the coasts and Great Lakes; and, as a secondary role, the provision of air or ground aid, advice and direction, as required in other emergencies. The organization for these purposes consists of six Rescue Co-ordination Centres, located at: Torbay (Nfld.), Halifax, Trenton, Winnipeg, Edmonton and Vancouver.

36. Specially equipped aircraft are organized in two rescue units, three station flights and four communication and rescue flights at various places across the country. In all, seven helicopters and thirty-seven other aircraft are involved.

37. In addition to aircrew for these planes, personnel specially trained for search and rescue duties include twenty-four para-rescue jumpers, twenty-one medical officers, nursing sisters and medical assistants trained in para-rescue roles, and land rescue units which consist of parties of ten men each.

38. During 1954 aircraft and marine distress missions, mercy flights and other emergencies involved the use of R.C.A.F. search and rescue aircraft on 230 occasions. Assistance was also given in numerous other instances not involving aerial participation, such as checks on unreported fishing boats or aircraft.



# **PRINCIPAL EXERCISES, JULY TO DECEMBER, 1954**

Exercises	Dates	Principal Force and/or Units Involved	Area	Nature of Exercise
CHECK POINT	2-11 Jul 54	Canadian Army Units Included: Hq. Anti-Aircraft Command, 2 Anti-Aircraft Operations Room 119th } 127th } Medium Anti- 128th } Aircraft Batteries  R.C.A.F. and other Air Force Units involved: R.C.A.F. Air Defence Command Regular and Auxiliary U.S.A.F. A.D.C. and S.A.C.	Canada—U.S.	Joint and combined Army-Air Force exercise to provide training and test the air defences.
DIVIDEND	16-25 Jul 54	1st Canadian Air Division, A.A.F.C.E., R.A.F. Commands, U.S.A.F. based U.K.	U.K. and approaches	R.A.F. Fighter Command major and defence exercise. Attacks by continental based aircraft
FAR CRY	Jul-Aug 54	R.C.A.F. No. 405 Maritime Sqn.	Canadian Arctic Islands	Ice reconnaissance for D.O.T., R.C.N. and U.S.N. resupply and survey vessels.
NEW BROOM II	9-16 Sept 54	R.C.N. Ships and maritime aircraft, R.C.A.F. aircraft U.S.N. Ships, submarines and patrol craft	West Atlantic Area	Anti-submarine warfare training. All forces deployed to control of R.C.N. and R.C.A.F. East Coast Commanders.
BATTLE ROYAL	22-28 Sept 54	1st Canadian Infantry Brigade, Northern Army Group, Europe.	Holland and West Germany	Combined land and air manoeuvre, simulating atomic warfare conditions.
SHOOTING STAR	23-26 Sept 54	1st Canadian Air Div., 4th A.T.A.F., 49th U.S.A.F. Air Div., French and U.S. C&R systems	Central Europe	Practice and test support tactics for bomber-striker forces.
MORNING MIST	23 Sept-3 Oct 54	NATO Units involved: R.C.N. Ships, R.N. Ships, Ships of French and Netherlands Navies	East Atlantic Channel Area	Exercise in co-ordinated tactical operations
RED PATCH	1-15 Oct 54	Canadian Army Units involved: Hq. 1st Infantry Division Hq. 2nd Infantry Brigade Hq. 3rd Infantry Brigade Hq. Supporting Arms and Services, 1st Infantry Division	Camp Borden	1st Canadian Infantry Division Signal Exercise to test formation Hq. operating procedures.

**PRINCIPAL EXERCISES, JULY TO DECEMBER, 1954—*Cont.***

Exercises	Dates	Principal Forces and/or Units Involved	Area	Nature of Exercise
WILD GOOSE	5-28 Oct 54	Canadian Army Units involved: 127th and 128th Medium Anti-Aircraft Batteries	Goose Bay Area	Radar site testing and firing practices.
CORDEX III	2-7 Nov 54	R.C.N. Ships and Aircraft	West Atlantic Labrador	Exercise in seaward defence of Halifax area
BULL DOG II	1-14 Dec 54	Canadian Army Units involved: Hq. Western Command, 1st Bn. The Royal Canadian Regiment, One Coy. 1st Bn. Royal 22e Regiment, Sub-units of Mobile Striking Force, Supporting Arms and Services; R.C.A.F. Units involved: Hq. 1st Tactical Air Command, Supporting aircraft from Nos. 435 and 436 sqdns.	North Eastern Manitoba (Churchill) Area	Operational training for arctic warfare of the Mobile Striking Force and testing of new equipment and rations
LION ROUGE	2-10 Dec 54	1st Canadian Air Div., all Central European Units and formations under SHAPE	Central Europe	A joint Command Post Exercise to test Central Europe Command Structure and practice joint operations procedures.

NOTE: In addition to the above mentioned principal exercises, elements of the Canadian forces carried out numerous routine and other operational training exercises. For example, the individual commands of the Mobile Striking Force each carried out three exercises in the programme of continuous airborne training. All R.C.N. ships at sea conduct training on board ship and in addition a considerable number of small scale exercises were carried out in conjunction with the R.C.A.F.'s maritime squadrons, Nos. 404, 405 and 407, and units of the U.S. Navy; these exercises were held on the Pacific and the Atlantic coasts and in the Bermuda area. Squadrons of the 1st Air Division took part in over seventy routine and other exercises in Europe.

## PART III

### DEFENCE ABROAD

#### United Nations

##### *Korea*

39. As a result of consultations between those Commonwealth governments with forces in Korea and the United Nations Command, the Commonwealth contribution to the United Nations forces in the Korean area has been reduced parallel with and in proportion to reductions made in United States forces there. So far as Canada is concerned this resulted in the withdrawal of approximately two-thirds of her forces by December 31, 1954, including two of the three R.C.N. destroyers formerly serving in Korean waters. As a result of subsequent developments the 2nd Battalion, Queen's Own Rifles of Canada, on completion of its tour of duty, returned home and at present Canada's contribution consists of a Canadian Army medical detachment with the Commonwealth Force in Korea and one R.C.N. destroyer on duty in the Far East. The requirement for trans-Pacific airlift by the R.C.A.F.'s No. 426 transport squadron terminated and the last round trip to Korea was made by the R.C.A.F. in June 1954. Canadian Pacific Airlines' aircraft under charter to the government continued to make a reduced number of flights between Vancouver and Tokyo until March 31, 1955.

##### *Indo-China*

40. In accordance with the cease-fire agreements concluded at Geneva on July 20, 1954, Canada has joined India and Poland in carrying out the work of the International Supervisory Commission in Viet-Nam, Laos and Cambodia. The Canadian Army acts as the executive agent for the Services in providing assistance as required by the Department of External Affairs. The Army has provided a military adviser and a deputy military adviser for each of the three Canadian Commissioners in Indo-China. A further eighty-three Army officers and forty-one other ranks are serving at Commission Headquarters and on fixed and mobile inspection teams. The R.C.N. and R.C.A.F. have each provided three officers, including a naval adviser and an air adviser to the Canadian Commissioner in Viet-Nam.

##### *Middle East and South Asia*

41. The Canadian Army provides nine officers for duty with the United Nations Military Observer Group, India and Pakistan; and four officers for the United Nations Truce Supervisory Organization in Palestine.

## North Atlantic Treaty Organization

### General

42. Six years have passed since the North Atlantic Treaty was signed by Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States. Greece and Turkey became signatories in February 1952 and the accession of the Federal Republic of Germany was formally completed in May 1955. Canada's own defence programme in the intervening years was in very large measure determined by undertakings made by this country in order to assist in rapidly building up NATO, and practically everything we are at present doing in defence is meaningful only in relation to the collective efforts of all NATO member nations to reduce the probability of a major war and its disastrous consequences. It is, therefore, appropriate at this time to review the development of NATO since its origin, so that the nature and direction of Canada's defence programme today can be more readily understood.

43. The preamble of the North Atlantic Treaty expresses the determination of member nations "to safeguard the freedom, common heritage and civilization of their peoples, founded on the principles of democracy, individual liberty and the rule of law." By one of the Treaty's most significant articles, member nations have pledged themselves to regard an attack against any one or more of them in the North Atlantic Treaty area as an attack against all.

44. The original decisions to create NATO were, of course, political decisions, taken individually and voluntarily by the governments of member nations. It cannot be emphasized too strongly that real and constant political control is at the very heart of NATO. This control is exercised through the North Atlantic Council which has effective powers of decision not only during the ministerial sessions but also through regular and special sessions, held by the Permanent Representatives who have ambassadorial rank and normally meet at least twice a week in Paris.

### Development

45. Since April 1949 NATO has passed through a number of stages. The initial period was characterized by a good deal of organizational flexibility and healthy improvisation, in order to meet new needs and to investigate how best the co-ordination of the defence efforts of member nations could be achieved. All aspects of the defence programmes of NATO countries were examined collectively to ensure that military strength would not be built up at the expense of economic stability and that no member country would be called upon to carry a burden of defence expenditures beyond its resources. This examination has become a continuing feature of NATO in the form of the NATO Annual Review. This, in turn, has been accompanied by the development of budgetary and auditing agencies responsible to the appropriate authorities at various levels up to and including the NATO Council itself. Thus, NATO aims at providing a maximum of collective security at a minimum of expense



to each member nation. At the same time the aim of military planning is to provide that minimum of effective forces which will be adequate to deter aggression and promote international stability.

46. By the autumn of 1950 it was clear that the defence of freedom in western Europe required the establishment of integrated military forces which would be maintained there constantly in a state of operational readiness. Accordingly, in December 1950, General Eisenhower was appointed Supreme Commander, Allied Powers Europe (SACEUR), and within the next few months his command was established with headquarters near Paris. During the year that followed five major co-ordinated commands were organized in the European theatre under the direction of SACEUR. The successful creation in time of peace of these integrated forces, contributed by member nations for service under one supreme command, gives to NATO a special character which distinguishes it from all previous defence treaties, alliances and collective security arrangements.

47. In January 1952, for the protection of vital sea communications between Europe and North America, a Supreme Allied Commander, Atlantic (SACLANT), was appointed and headquarters established at Norfolk, Va. Unlike SACEUR, SACLANT does not have forces constantly under his direction. Instead, while his permanent staff is drawn from participating NATO countries, those countries earmark for assignment to the Atlantic Command in the event of an emergency substantial naval forces, together with supporting land-based air and ground forces. From time to time elements of these forces carry out exercises to test and develop plans which are continually being reappraised for use in this area, should the need arise.

48. The latest phase in the NATO defence programme was announced during the winter of 1953-54 and has become known as the beginning of "the long haul". On the military and economic planes the objective is to adjust the levels of military forces to the necessities of defence over an extended period, with due consideration for the latest developments and inter-relations in the fields of technology, science, training, tactics and strategy. On the political plane the vital need is for the broadening of understanding as between the various member nations, and within each nation, in order that the unity so essential to the whole organization can be maintained and, wherever possible, strengthened and deepened by growing confidence and trust. In its relatively short period of existence, NATO has succeeded in its fundamental purpose: the preservation of peace. But this achievement is preventive in nature and the peoples of NATO countries must supply the positive element from within themselves—by continuing to give proof of their determination to remain united, strong and free, under the rule of law.

#### ***Ministerial Session of December 16-17, 1954***

49. When the North Atlantic Council met in Paris in ministerial session in December 1954, the Council agreed that in spite of some outward signs of flexibility, Soviet policy, backed as it is by ever-increasing military power, continues to be directed towards weakening and dividing

the western nations. The Council reaffirmed its will to continue to build for peace on solid foundations of unity and strength. It noted with satisfaction the progress that has been made towards bringing into effect the agreements relating to the accession of Germany to NATO, which it regards as an essential contribution to the unity of Europe, to the security of the free world and, thereby, to the cause of peace.

50. Accordingly, it was recognized that the level of forces for the defence of the NATO area should be maintained as planned. It was noted that there had been an increase in the strength of NATO forces and further steady improvement in their efficiency during the past year. This improvement in quality resulted primarily from the large-scale exercises held by NATO land, sea and air forces, from the increases in operational support units and from the supply of large quantities of new equipment.

51. On the basis of recommendations in the Annual Review for 1954 and recognizing that it would be necessary for member countries to support over a long period forces which by their balanced quality and efficiency would be a major factor in deterring aggression, the Council adopted firm force goals for 1955, provisional goals for 1956, and planning goals for 1957, with provision for further improvements in training, equipment and effectiveness. The Council recorded its opinion that the German defence contribution under the Paris Agreements remains an indispensable addition to the defence effort of the West.

### *Canada and NATO*

52. Canada's recognition of the need for an organization along the lines of NATO was first expressed in September 1947, when the Right Honourable Louis St. Laurent spoke to the Assembly of the United Nations. Historic ties of tradition, race, language and religion have given Canada special reasons for working closely with a considerable number of NATO nations for genuine unity within the group as a whole, and considerations of trade and immigration have strengthened the bonds between Canada and virtually all of the NATO nations. From the purely military point of view, Canada's participation in the two world wars has led to the conviction that in the world as it is today the defence of Canada, continental defence, and the defence of western Europe are all inseparable parts of the same problem: the defence of western civilization by ensuring through the manifest strength of NATO that aggression will be deterred and peace maintained.

53. Consequently, Canada has contributed trained and equipped forces at home and abroad, financial support and Mutual Aid to assist in the building and maintaining of NATO. Following the common decision to establish integrated forces in Europe, Canada undertook a special recruiting programme in the summer of 1951, and towards the end of that year the 27th Canadian Infantry Brigade Group took its place in Europe alongside the forces of our allies. Towards the end of 1953 and in accordance with our NATO commitment, the 1st Canadian Infantry Division was formed with headquarters in Canada. Two-thirds of the Division are stationed in Canada and conduct their training here; the remaining third, the 1st Canadian Infantry Brigade, proceeded to Germany and

relieved the 27th Brigade there in November 1953. The 1st Brigade is quartered in the Soest area of Germany in four camps which were built mainly in 1953, with the exception of married quarters, dependents' schools and certain additional facilities. On completion of its two-year tour of duty towards the end of 1955 the 1st Brigade will be returning to Canada and will be replaced by the 2nd Canadian Infantry Brigade.

54. Canada's original commitment to the NATO Integrated Air Forces was for eleven squadrons of day fighters; this was increased to twelve squadrons following the ministerial meeting at Lisbon in February 1952. The first wing of the 1st Canadian Air Division was flown overseas in the autumn of 1951 and the fourth and final wing arrived in Europe in August 1953, several months in advance of the R.C.A.F.'s NATO commitment. Personnel and equipment of No. 1 Wing were flown from North Luffenham, England, to Marville, France, in January 1955 by the R.C.A.F.'s Air Transport Command. The Air Division is now located at its planned bases, viz., Marville and Grostenquin France, and Baden-Soellingen and Zweibrücken, Germany, with headquarters at Metz, France, and supply depot at Langar, England. The fighter squadrons of No. 1 Wing on leaving North Luffenham converted to Sabre V aircraft and the wing at Marville became fully operational on March 1, 1955. All squadrons of the Division are at present equipped with Sabre V or VI aircraft and Canada has agreed to assist in meeting the expressed NATO need for a number of all-weather jet fighters in Europe. This will involve the replacement of four of the present Sabre squadrons by CF-100 squadrons, to be begun as soon as practicable after the regular air defence squadrons in Canada have been completely equipped with CF-100's.

55. In the past several years, for the defence of the Canada-U.S. area and for the protection of convoys under the control of SACLANT, the R.C.N. has had in readiness a fairly high proportion of all its ocean-going warships in commission. At present the R.C.N. has 43 ships earmarked for these duties, and should an emergency arise the Navy is prepared to meet its commitment for a much larger number of ships, from those in reserve and otherwise available.

### ***Contributions to the Military Costs of NATO***

56. During the past six years the North Atlantic Council has authorized some £ 650 million (\$1,755 million) for the construction of military projects known collectively as "NATO Common Infrastructure". These projects are necessary for NATO operations in the event of war and they are included in the Common Infrastructure programme either because they are required for the use of forces of more than one country or because by their nature they cannot be considered the responsibility of any one country to provide. Land and certain other facilities for Common Infrastructure projects are supplied free of charge by the country in which the projects are located, the host country. Construction is the responsibility of the host country, the costs being reimbursed to the host country in



accordance with the cost-sharing formula for the programme concerned. Details of Canada's share of these costs and the peacetime operating and capital costs of certain NATO military headquarters are provided in paragraphs 194 to 196 and in the tables on pages 55 to 57.

57. By the end of 1954 the NATO Infrastructure Programme had made available for use, as needed, 132 airfields; of these, 12 were additional airfields and 120 were available in 1953 but have been subject to continuing improvements so that they can handle the latest NATO fighter planes. Construction work is underway for a vast fuel pipeline system that will consist of some 3,750 miles of pipe, together with pumping stations, storage facilities, etc. It is estimated that this system, when completed, will be able to handle a rate of flow equivalent to the uninterrupted movement of 70 fully loaded tanker trains. In addition, the infrastructure programme also included projects for the telecommunications system, headquarters, bases and related facilities.

58. An amount of £81 million (\$218·7 million) was approved for the 1955 Infrastructure Programme, which consists in large part of projects approved for commencement in 1955. Approximately 40 per cent of expenditures authorized for projects in this year's programme will be for improvements to existing airfields and for construction of additional airfields; 25 per cent for NATO additions to naval base and fleet facilities; 20 per cent for further expansion of the oil pipeline system; 10 per cent for telecommunications; and the remainder for radar warning installations, radio navigational aids and headquarters.

#### ***Canadian Mutual Aid Programme***

59. Between April 1, 1950 and March 31, 1955, arrangements under the Canadian Mutual Aid Programme provided for the transfer by Canada of military aid to the non-North American members of NATO to the extent of an estimated total of \$1,100,400,000. The main elements in the programme are:

- (a) training in Canada of aircrew for other NATO countries;
- (b) transfers of equipment from service stocks or from current production for the Services;
- (c) direct transfers of equipment from current production;
- (d) contributions towards infrastructure programmes and NATO Budgets.

60. The present aircrew training programme developed from the critical need of NATO for trained aircrew and was based, in part, upon experience gained from the Commonwealth Air Training Plan, which demonstrated its worth during the Second World War. By December 31, 1954 under the NATO plan a total of 1,297 pilots and 2,009 navigators from Belgium, Denmark, France, Italy, the Netherlands, Norway, Portugal and the United Kingdom had graduated from training establishments in Canada. An additional 989 trainees are currently undergoing training, which includes instruction in English language for those who arrive here without a knowledge of English adequate for participation in flying training.



61. The aircrew training programme continues to be of great mutual benefit to NATO as a whole and to Canada. While the costs of training pilots and navigators for the R.C.A.F. are separate from NATO aircrew training under Mutual Aid, the operation of the plan enables the R.C.A.F. to make maximum use of its training establishments and equipment on a more economical per capita basis. Moreover, the training of R.C.A.F. personnel alongside their NATO allies has certain inherent advantages which are by no means limited to their purely technical educational value. NATO trainees have shown a keen interest in the general course which is given to acquaint them with Canada, our peoples and customs, as well as Canadian service procedures.

62. As regards transfers of equipment, it will be recalled that when the Canadian Mutual Aid Programme was inaugurated in 1950, there existed in various NATO areas grave deficiencies of equipment. After careful appraisal of the then existing threat, the Canadian Services agreed to release from their stocks certain equipment which it was considered was more urgently required by forces in Europe. At the same time Canada undertook largely to meet the needs of our forces for equipment by increasing indigenous capacity for defence production; furthermore, by producing in excess of these requirements, Canada agreed to assist in meeting the equipment requirements of allied countries by contributions under the Canadian Mutual Aid Programme.

63. While the emphasis in Canada's earlier programmes was on transfers of equipment from service stocks, since around 1953 programmes have contained an increasing proportion of materials and equipments supplied from current Canadian production. In common with other members of NATO, Canada is now concerned with the problem of maintaining in being those elements of the existing production base which would be essential for mobilization. Moreover, having regard to the changing emphasis in NATO's overall defences and taking into account new and additional needs for the direct defence of North America, Canada is undertaking adjustments within her own defence programme to make possible the carrying out of gradually changing commitments. While this implies some reduction in current Canadian transfers of military equipment under Mutual Aid, Canada recognizes the desirability of continuing the emphasis on new pattern equipment and of continuing to supply required spares for certain equipments previously transferred.

64. To ensure that materials and equipment transferred by Canada as Mutual Aid do go to the nation or nations able to use it to the best advantage of NATO as a whole, offers are made initially through the Standing Group or the NATO Secretariat. These bodies evaluate the relative needs of prospective recipient countries and make recommendations as to the most effective allocations. Canada normally accepts the recommendations of these NATO agencies and the equipment is then formally offered through diplomatic channels to the nations concerned. For their part, individual member countries, when indicating a requirement for specific items or groups of items, undertake certain financial obligations relating to costs such as those for transfer and, as applicable, for installation and maintenance.

### **Standardization**

65. The effort to standardize tactics, doctrines and equipment for use by all NATO forces has been continuous. The establishment of Supreme Commands has made it possible to conduct combined exercises on a large scale; for example, last autumn some 140,000 troops from Belgium, Canada, the Netherlands, the United Kingdom and the United States took part in *Battle Royal*, one of the largest exercises to date. Military manoeuvres of this kind emphasize the need for standardization in particular spheres.

66. In order to improve the handling of new projects and amendments to existing agreements, the Military Agency for NATO Standardization has been re-organized. A chairman has been appointed and a combined secretariat has been established to handle the output of the three separate Service Boards. The organization can handle with equal facility a standardization project which may affect only one service, or one of a joint nature. The appointment of a chairman has given this agency a spokesman who can deal directly with other NATO bodies and with national Ministries of Defence.

67. Due to the diversity of conditions under which NATO forces must operate, the Military Agency for Standardization encourages regional standardization projects between two or more nations. When regional agreements are reached, they are filed with the Military Agency for Standardization for NATO-wide adoption if found suitable.

### **Legal Status of Forces Abroad**

68. The NATO Status of Forces Agreement, initially entered into in June, 1951, is in effect between Canada and Belgium, France, Greece, Luxembourg, The Netherlands, Norway, Turkey, the United Kingdom and the United States of America. Under the Agreement, Canadian Forces in any one of these countries remain subject to Canadian military law although they are amenable to the criminal jurisdiction of the courts of that country in certain circumstances. The Agreement provides for the manner in which the question of which country has the primary right to exercise jurisdiction is to be settled. In cases of particular Canadian concern, Canada is vested with the primary right to exercise jurisdiction. In addition to the provisions respecting criminal jurisdiction the Status of Forces Agreement ensures that certain privileges are extended to our forces such as the importation of supplies free of duty. Canadian Forces are at present stationed in Belgium, France and the United Kingdom under this Agreement.

69. In Germany the legal status of Canadian Forces has been governed by Allied High Commission Law No. 69 which extends to them the status and privileges of the forces of the three occupying powers, the United Kingdom, France and the United States. Canadian Forces are not, however, stationed in Germany as "occupying forces" but are there as part of the defence forces of the North Atlantic Treaty Organization. When the occupation of the Federal Republic of Germany is formally terminated in accordance with the Protocol signed in Paris by the three occupying powers and the Federal Republic in October 1954, the status of Canadian

Forces will for the time being be governed by the revised Bonn conventions appended to that Protocol. Later, however, a new convention or conventions will be negotiated between the Federal Republic and those countries having forces in Germany on the basis of the NATO Status of Forces Agreement. The right of these countries to station forces in Germany, after the termination of the occupation regime, is embodied in the Convention on the Presence of Foreign Forces in the Federal Republic of Germany, signed by the three occupying powers and the Federal Republic in October 1954 and open to accession by other countries having forces there. Canada has now acceded to this Convention.

70. In Korea, Canadian Forces have, under working arrangements with the Republic of Korea, such privileges and immunities as are necessary for and consistent with their military mission.

71. In Japan, the United Nations Unified Command has negotiated an agreement with the Japanese government giving the United Nations forces stationed in Japan the same status, insofar as criminal and civil jurisdiction is concerned, as they would have if the NATO Status of Forces Agreement were applicable. This Agreement applies to Canadian Forces stationed in Japan.

72. Where dependents accompany members of the Canadian Forces in any of the above-named countries, their status as dependents is officially recognized in the various agreements defining the status of Canadian Forces. From a practical point of view dependents enjoy substantially the same privileges as Canadian servicemen.



## PART IV

### MANPOWER AND TRAINING

#### *Strength*

73. The maximum strength of the Regular Forces has now been set at 120,000, except for a small additional percentage to allow for seasonal variations in enrolments and releases and an allowance of 3,000 for officer cadets and apprentices. Within the total figure, the maximum for each Service is: Navy—20,000; Army—49,000; Air Force—51,000.

74. It will be seen from the growth of the Regular Forces in recent years, shown in the table on page 23, that considerable emphasis has been placed on permanent forces. This emphasis is in keeping with the basic defence policy outlined in the preceding pages, and results from the necessity, under conditions envisaged for any future war, to have immediately available substantial forces-in-being, trained to the highest possible state of operational readiness. It is with these demands clearly in mind that Canada's regular force component of the free world's collective strength has been set at the figure of 120,000, excluding officer cadets and apprentices.

#### *Women in the Services*

75. As at December 31, 1954 there were 6,600 women in the Regular and Reserve Forces of the three Services. Of the 3,346 women in the Regular Forces: 64 were in Navy, 203 in Army, and 3,076 in Air Force. Of the 3,314 women in the Reserve Forces: 928 were in Navy, 1,558 in Army, and 828 in Air Force. The R.C.A.F. continues to recruit women for the Regular Force for clerical, stenographic, radar, telecommunications and other duties. Except for nursing and other allied services and a few key personnel, the Army continues to recruit women for the Reserve Force only.

76. In February 1955 authorization was granted to the R.C.N. to establish a women's component to be integrated in the Regular Force and to consist of 35 officers and 365 other ranks. In time of peace the wrens will perform essential duties, similar to those carried out by women in the R.C.A.F., and in the event of a total mobilization the present wren component will provide a nucleus capable of training the influx of wrens that it is expected would be necessary.

#### *Enrolments and Wastage*

77. As each of the Regular Forces approaches target strength enrolments and wastage will come into approximate balance. The maintenance of forces will, of course, involve a normal turnover of personnel with wastage continuing at about its present rate and with the recruiting rate adjusted accordingly and with emphasis on qualitative selection.



## Strength of Regular Forces—Including Officer Cadets and Apprentices

	Navy			Army			Air Force			All Services		
	Officers	Other Ranks	Total	Officers	Other Ranks	Total	Officers	Other Ranks	Total	Officers	Other Ranks	Total
March 31, 1950.....	1,306	7,953	9,259	2,753	17,899	20,652	3,143	11,131	17,274	7,202	39,983	47,185
March 31, 1951.....	1,555	9,527	11,082	3,387	31,599	34,986	4,357	18,002	22,359	9,299	59,128	68,427
March 31, 1952.....	1,867	11,638	13,505	4,800	44,478	49,278	6,820	25,791	32,611	13,487	81,907	95,394
March 31, 1953.....	2,173	13,373	15,546	5,220	43,238	48,458	8,071	32,352	40,423	15,464	88,963	104,427
March 31, 1954.....	2,394	14,561	16,955	5,397	44,581	49,978	8,300	37,296	45,596	16,001	96,438	112,529
Dec. 31, 1954.....	2,670	16,136	18,806	5,573	43,874	49,447	8,886	39,864	48,750	17,129	99,874	117,003

## Strength of Reserve Forces

	R.C.N. (R), Active List			Canadian Army (Militia)			R.C.A.F. Auxiliary					
	Officers	Other Ranks	Total	Officers	Other Ranks	Total	Officers	Other Ranks	Total	Officers	Other Ranks	Total
March 31, 1950.....	964	2,699	3,663	6,058	36,989	43,047	636	1,733	2,369	7,658	41,421	49,079
March 31, 1951.....	1,000	2,862	3,862	6,697	39,759	46,456	808	2,399	3,207	8,505	45,020	53,525
March 31, 1952.....	1,248	3,843	5,091	7,227	39,709	46,936	1,325	3,485	4,810	9,800	47,037	56,837
March 31, 1953.....	1,378	3,947	5,325	7,629	39,243	46,872	1,647	4,227	5,874	10,654	47,417	58,071
March 31, 1954.....	1,410	3,604	5,014	7,599	38,907	46,506	1,807	3,633	5,440	10,816	46,144	56,960
Dec. 31, 1954.....	1,557	3,831	5,418	7,271	38,888	46,159	1,888	3,651	5,539	10,746	46,370	57,116

78. During the period April 1 to December 31, 1954, total enrolments for the R.C.N. were 3,466 and total wastage 1,615. This substantial net increase results largely from a fairly satisfactory recruiting programme. As Navy approaches its authorized complement the area of relative difficulty in recruiting is mainly in fields of higher trade groups. This can be met in part by further selective recruiting, and training programmes now in progress are expected to offset the balance of the requirement.

79. In the same period enrolments for the Army were 7,676 and total wastage 8,207. There has been an increase in the number of voluntary retirements owing mainly to the release of personnel who joined the Army in 1951 for service in Europe and the release of married Korean veterans who exercised their option for release on return from the Far East. However, it is noted that the large majority of voluntary releases was among younger men who had completed only one term of service. Efforts are being made to encourage as many as possible of this group to continue in service. On the other hand, wastage in the more senior ranks and among personnel with experience and long service remains encouragingly low. For example, during October 1954, the peak month for re-engagements, 93 per cent of the men completing second or subsequent engagements re-engaged.

80. The increase in compulsory releases during the period reflects a continuing attempt to raise the general standard within the Army. This is also being achieved by more selective recruiting which may, in part, account for the reduction in enrolments during the period.

81. Between April 1 and December 31, 1954, total enrolments for the Air Force were 7,412 and wastage 4,258. The net increase represents a solid achievement. The R.C.A.F. has a further modest increase to effect before reaching target strength, and much of its manpower requirement is a continuing recruitment of aircrew. The inherent difficulty in this regard is that the source of applicants who can meet the requirement standards, both for enrolment and in training, is relatively small and the alternative careers open to such young men are numerous. A further problem exists in regard to the women's division of the R.C.A.F., in which enrolments are slow and releases tend to be higher than is desirable.

82. Notwithstanding the general and particular problems noted above, the record of enrolments and re-engagements for the Armed Forces is on the whole satisfactory. This, in turn, can hardly be divorced from the growing recognition of the outstanding career prospects in the Services for young Canadians who can meet the requirements of military life.

### ***Canadian Services Colleges***

83. As in previous years cadets were accepted at the Canadian Services Colleges at two levels of entry. Last year 192 students who had completed senior matriculation, or equivalent, were selected for admission to

the Royal Military College and Royal Roads. A further 124 were selected at the junior matriculation level for admission to the preparatory year at Le Collège Militaire Royal de Saint-Jean. In addition, provision was made for the first time for a limited number of French-speaking students, who had completed their classical college B.A., to enter directly into the first year at Le Collège Militaire Royal de Saint-Jean. Seven cadets were enrolled under this provision. A total of 1,369 applications was received for these 323 vacancies, which represented a small increase over the number of applications received the previous year. More important than this quantitative increase, however, was a marked improvement in the quality of candidates who presented themselves.

84. Because of the pressing need for career officers for the Regular Forces at the present time, it has been necessary to accept for the Canadian Services Colleges only cadets willing to enrol under the Regular Officer Training Plan. Exceptions to this rule were made in the case of five cadets who qualified for Dominion Cadetships. These Cadetships are awarded to suitable candidates who are the sons of officers or men who have been killed or incapacitated while serving in the Armed Forces of Canada or who have served at least fifteen years.

#### *Regular Officer Training Plan*

85. Under the terms of the Regular Officer Training Plan, selected students who meet enrolment standards are sent at public expense either to one of the Canadian Services Colleges, or to a Canadian university. These accepted ROTP candidates are enrolled as subordinate officers in the Service of their choice and are supplied with the necessary books, instruments and uniform clothing, in addition to receiving free tuition. The rate of pay as subordinate officers is \$55 per month, with a subsistence allowance of \$65 per month where applicable.

86. On graduation from the Royal Military College or a university an ROTP Cadet is granted a permanent commission in the Service for which he enrolled. He does, however, have the option of requesting release after serving a minimum period of three years beyond completion of academic training.

#### *Reserve Officer Candidates at Universities*

87. Reserve elements of the three Services are represented at a total of thirty-seven Canadian universities and colleges. There are members of the University Naval Training Division (UNTD) at twenty-two universities and colleges; the Army's Canadian Officer Training Corps (COTC) is represented by twenty-eight contingents; and there are units of the R.C.A.F.'s University Reserve Training Plan (URTP) at all thirty-seven of the universities and colleges.

## Officer Candidates in Training at December 31, 1954.

	<i>Navy</i>	<i>Army</i>	<i>Air Force</i>	<i>Total</i>
<b>CANADIAN SERVICES COLLEGES</b>				
Regular Officer Training Plan (ROTP) .....	156	277	248	681
Reserve Cadets .....	26	*73	*40	139
Other .....	5	—	2	7
<b>UNIVERSITIES</b>				
Regular Officer Training Plan (ROTP) .....	74	207	242	523
University Naval Training Detachments (UNTD) .....	707	—	—	
Canadian Officers' Training Corps (COTC) .....	—	1,542	—	3,015
University Reserve Training Plan (URTP) .....	—	—	766	
Other .....	21	—	4	25
OTHER PLANS** .....	252	1,288	822	2,362
Total .....	1,241	3,387	2,124	6,752

\* Army Cadets are on strength of the COTC. Air Force cadets are under the URTP, which is part of the Primary Reserve.

\*\* "Other Plans" comprise Venture Plan cadets (Active Force), and midshipmen (Active and Reserve) in the Navy; Officer Candidate Programme (Regular Force, and COTC command contingents (training for commissions in both Regular and Militia) in the Army; and Flight Cadet trainees (Regular and Auxiliary Force) in the Air Force.

*Note:*

In addition to the officer cadets and midshipmen in training at December 31, 1954, there were 85 subordinate or commissioned officers of the Regular Forces undergoing academic training at Canadian universities, comprising medical and dental students enrolled under a special financial assistance plan, and ROTP graduates of the Royal Military College taking their degree year.

**Naval Training**

88. The R.C.N. operates training establishments for the Regular Force at Esquimalt, British Columbia; Quebec City, Quebec; Cornwallis, Dartmouth and Halifax, Nova Scotia. In addition to courses for personnel already in the Service, training was provided for personnel newly enrolled. In the period April 1 to December 31 the net increase in the strength of the R.C.N. was 276 officers and 1,575 men. For preparing French-speaking new entries for naval careers H.M.C.S. *D'Iberville* at Quebec City continued to operate in a most satisfactory manner.

89. During the summer of 1954, 1,498 officers, men and wrens received training ashore and afloat at the coasts. In addition, 809 officers and men received training afloat in three Bangor class coastal escorts stationed at Hamilton, Ontario. At the end of December 1954, there were 137 naval apprentices undergoing technical training under the Naval Technical Apprenticeship Training Plan, now in the third year of operation.



90. In addition to facilities at R.C.N. bases at both coasts for training personnel of the R.C.N. (Reserve), three coastal escorts and five fairmile patrol craft formed a reserve training squadron and operated from Hamilton, Ontario, during the summer months. The specialized training programme in each Naval Division is being complemented by a new overall training programme co-ordinated by the Commanding Officer Naval Divisions. At each Division regular force officers and men provide a nucleus for training and maintenance.

### ***Army Training***

91. The Army's training policy is under review continuously to ensure that training methods and courses are consonant with modern developments. An annual training programme has been introduced which progresses through individual and unit training and culminates in formation training which takes the form of simulated war exercises. The results of this type of programme are encouragingly good.

92. Along with emphasis on individual skill-at-arms for all ranks, trade and specialist training was conducted in corps schools and units; results continue to be satisfactory. Special weapon training courses have been started for instructors. The Army Physical Training Cadre has been organized to assist in maintaining the high standard of physical fitness required.

93. Full use is being made of major training areas and camps. Camp Gagetown is under development. During the summer of 1955 units from Eastern Canada and a few units from Western Canada will concentrate for formation training at Camp Gagetown under command of the G.O.C., 1st Canadian Infantry Division. Headquarters 2nd Canadian Infantry Brigade and units located in Western Canada will concentrate at Camp Wainwright.

94. The Army administers the Joint Atomic, Biological and Chemical Warfare School at Camp Borden, where special training in ABC warfare is given to officers and N.C.O.s of the three Services and selected civil defence personnel.

95. The annual tactical study for selected senior officers of the Regular Army, Militia and Supplementary Reserve was held in Kingston in December. These studies are devoted to an examination of our tactics, organization and equipment, in the light of the development of new weapons which may be used in a future war.

96. In June 1953 the first group of apprentices began the new programme of military, academic and trades training. This class has now completed the programme and its members have been posted to trades vacancies in various corps. At present approximately 600 soldier apprentices are under training at selected army schools. The next intake is planned for September 1955. The results of the training so far have shown that the plan is producing young soldiers of whom Canada can be proud.

97. The reorganization of the Militia has been noted above in Part II. Militia attendance at training in summer camps increased from a total of 14,568 (all ranks) in 1953 to 16,593 in 1954.

### ***Air Force Training***

98. In 1954 the training of non-pilot aircrew was integrated to provide a common basic course in navigation and electronics, after which advanced training is given separately in the special fields of air interception radar and navigation; long-range navigation; and radio communications. The new plan is designed to improve the overall quality of training, provide the various members of aircrew with a greater appreciation of each other's problems, improve teamwork within an aircrew and facilitate co-ordination training.

99. By bringing the Silver Star (T-33) jet aircraft into use in training schools, the R.C.A.F. continued to provide pilot training of the kind most urgently required under the ever-changing conditions of modern warfare. During 1954 the conversion to jet aircraft from piston-driven aircraft was completed at advanced single-engine pilot training schools and at the pilot weapons school.

100. Specialist training was given to eighty officers in the aeronautical engineering, armament, telecommunication, supply, ground defence, and flying control branches. Officers in other categories are either skilled on entry or are given on-the-job training.

101. An interservice course for medical officers was commenced during 1954. This course, held at the R.C.A.F. Institute of Aviation Medicine, is designed to acquaint newly enrolled medical officers with the service application of medical practice.

102. During 1954-55 the R.C.A.F. training programme reached its post-war peak and 7,830 tradesmen graduated. In addition to a quantitative increase in training, many of the courses were increased in length and scope to meet the maintenance requirements of the more complicated equipments that are now being brought into use. The supervisor and superintendent programme, initiated in a small way during 1954-55, is expected to expand as the level of training within various trades progresses. The supervisor training programme includes a course of service training designed to develop leadership ability and improve the general service knowledge of R.C.A.F. N.C.O.'s. Approximately 1,000 personnel annually complete this particular course.

103. The strength of the Primary Reserve totalled 3,411 at December 31, 1954. Flying training was given to 576 candidates during the year under the Refresher Flying Training Plan. Under the Mobilization Assignment Training Plan, 622 officers and N.C.O.'s received on-the-job training with regular force personnel. It is noteworthy that this plan was broadened to include 500 senior N.C.O. positions.

104. The Reserve Tradesmen Training Plan was continued with a total enrolment in 1954 of 1,855, of which 64 per cent achieved Group I standard. Emphasis remained on the major aircraft and telecommunications trades.

### Civilian Personnel

105. The Department of National Defence follows the policy, in effect in most modern nations, of employing substantial numbers of civilians in carrying out the defence effort. Considerations of efficiency and economy require the maintenance of a proper balance between military and civilian personnel, generally on the basis of the nature of the work being performed and the qualifications necessary for particular tasks.

106. In view of the standards of the Armed Forces, especially those relating to health and age, it is recognized that as many officers and other ranks as possible should serve in primarily military roles, such as those involved in operational or training duties in the field, aboard ship, or at service establishments in certain areas, including those abroad. Hence, more effective use of service personnel is facilitated by the employment of civilians in roles for which military training or a military background are not essential.

107. It normally costs substantially less to employ civilians for duties that require little or no military knowledge. This is so mainly because every member of the Armed Forces must receive professional military training, which may not be related to the particular tasks which he performs from time to time. Moreover, military pay and allowances take into consideration not only the specific duties being performed but also a number of factors exclusively related to the terms and conditions of service life.

108. It should also be noted that whereas military efficiency demands mobility and wide experience, many defence jobs require continuity of service in one place, and such jobs lend themselves to the employment of civilians.

109. The civilian strength of the Department of National Defence was 54,795 at December 31, 1954. The following table shows the breakdown of classified and prevailing rate employees throughout the Department.

	March 31 1954			December 31 1954		
	Classi- fied	Prevailing Rates	Total	Classi- fied	Prevailing Rates	Total
Navy .....	5,633	5,659	11,292	6,210	6,051	12,261
Army .....	12,012	7,981	19,993	12,646	8,916	21,562
Air Force .....	7,165	6,930	14,095	7,963	7,396	15,359
D.R.B. ....	2,212	292	2,504	2,172	476	2,648
Administration, Other Than Inspection Services .....	798	19	817	695	19	714
Inspection Services .....	2,248	55	2,303	2,171	80	2,251
Total	30,068	20,936	51,004	31,857	22,938	54,795

**Civilian Employees at National Defence Headquarters, Ottawa**  
(excluding D.R.B.)

March 31 1954				December 31 1954		
	<i>Classi- fied</i>	<i>Prevailing Rates</i>	<i>Total</i>	<i>Classi- fied</i>	<i>Prevailing Rates</i>	<i>Total</i>
Navy .....	1,223	8	1,231	1,251	3	1,254
Army .....	1,032	2	1,034	1,171	8	1,179
Air Force .....	601	3	604	565	—	565
Inter-Service .....	179	43	222	201	60	261
Administration						
Other Than						
Inspection						
Services .....	727	19	756	628	19	647
Inspection						
Services .....	367	8	375	387	16	403
Total	4,139	83	4,222	4,203	106	4,309



## PART V

### CONDITIONS OF SERVICE

#### *Regular Officers*

110. Regular officers enter the Services to serve indefinitely at the Queen's pleasure, usually after training at one of the Canadian Services Colleges or at a university. In each Service there are compulsory release ages for officers, according to age and rank. On reaching the compulsory release age for his rank a regular officer may be retired on pension or retained in the Service for a further specified period.

#### *Classified Officers*

111. In the Canadian Army certain permanent officers hold classified commissions. This group is composed principally of officers commissioned after long and meritorious service as warrant or non-commissioned officers. They are employed in officer positions specifically related to their experience as other ranks. A limited number of classified officers can be commissioned directly from civil life, if their experience and qualifications suit them for employment in specific officer positions.

#### *Short Service Officers*

112. Not all officers enter the Services as permanent career officers. Depending upon requirements, the Services grant short service commissions to officers who serve for specified periods. The Navy offers former wartime officers, or reserve officers on the active list, short service commissions for three years; with junior matriculation standing young men joining the Navy may enter the air branch for seven years. Entry with officer status into the Royal Canadian Navy on a seven year short service appointment is open under the "Venture" plan to young men with junior matriculation (or equivalent) standing. The Army offers short service commissions for periods of three, four or five years. Officers entering the medical or dental branches may serve for six or seven years. The Air Force offers short service commissions for five years to young men with senior or junior matriculation standing. Short service officers may later be granted permanent commissions if their service has been commendable and if vacancies exist. Reserve officers may also be called out for short periods of duty on occasions when there is a vacancy which cannot be filled by a regular officer.

#### *Men*

113. The normal period of enlistment for men in the Navy is five years. For the first enlistment in the Army, a man may elect to serve for three or six years; and all subsequent enlistments are for the same periods. Similarly, the Air Force offers three or five year periods for a

first enlistment; normally subsequent enlistments are for five-year periods, though in the case of an airman who enlisted originally for three years and who subsequently is selected for advanced training or for a transfer overseas involving the movement of his dependents, re-enlistment for a two-year or a five-year period is optional.

### ***Technical Apprentices***

114. The Navy enlists as technical apprentices young men who have reached their 16th but not their 19th birthday; the enlistment is for seven years. The Army enlists technical apprentices who have reached their 16th but not their 17th birthday for a period of seven years; at the end of five years, such apprentices may elect to be released if 120 days notice is given.

### ***Permanent Home Stations***

115. For regular field units of the Canadian Army, permanent home stations are being developed across Canada. This development is intended to give greater stability to servicemen and their dependents, for as units complete periods of overseas service they will return to a permanent home location. These stations have been sited with full regard to all the factors involved, including operational requirements and training facilities. The locations are as follows: Chilliwack, British Columbia; Calgary and Edmonton, Alberta; Rivers, Shilo and Winnipeg, Manitoba; Barriefield, Borden, London, Petawawa and Picton, Ontario; Quebec City and Valcartier, Quebec; and Camp Gagetown, New Brunswick.

116. The R.C.N.'s home ports at Esquimalt and Halifax provide a similar element of home base stability for officers and men of the Navy.

### ***Married Quarters***

117. As at December 31, 1954 there were in Canada 15,456 completed permanent married quarters, owned by the Department of National Defence and provided for married personnel of the three Services. This represents an increase of some 400 units since March 31, 1954. At the same date an additional 949 units were under construction and a further 3,476 planned. Besides these permanent married quarters there are 1,825 temporary and emergency units still in use.

118. Under the Limited Dividend Corporation scheme, administered by Central Mortgage and Housing Corporation, 384 married quarters have been made available at various urban locations across the country and negotiations are underway for the provision of a further 1,871 units. In addition, 486 units are rented by the Department from the Central Mortgage and Housing Corporation.

119. At Canadian Army and Air Force establishments in Germany and France a total of 3,216 housing units were authorized for construction for married personnel. By December 31, 1954 about half of these units had been completed; the balance being provided for Army camps will be finished early this spring and it is expected that the remainder at Air Force bases will be completed later this year.

### ***Additional Facilities***

120. At Canadian service establishments in France and Germany a considerable programme of additional facilities has been authorized in order to make available to Canadian servicemen many of the facilities that are available within the average community in Canada. Chapels, theatres, gymnasia, canteens, sports fields, tennis courts, shopping centres, bowling alleys and, at some sites, swimming pools, artificial ice rinks and recreation centres either have been provided or are nearing completion.

121. For Canadian servicemen stationed abroad sports equipment and reading and writing material are provided; other recreational amenities include daily news bulletins, weekly news-reels, and documentary, sports and other films.

### ***Maple Leaf Services***

122. In order to concentrate under one centrally controlled organization the operation of canteens and other related facilities such as motion picture theatres, bowling alleys and family shops, the Canadian Army has formed the Maple Leaf Services as a private, non-profit corporation. It will serve Army units in Canada and abroad by providing amenities which are not otherwise readily available, having regard to location and convenience. The board of directors comprises the members of the Army Council and a civilian managing director, who is responsible to the board for operations of the corporation.

123. It is anticipated that under the centralized control of Maple Leaf Services there will be more equality in the provision of amenities provided from non-public funds than was possible under the system being replaced. Maple Leaf Services is planned as a self-supporting organization, utilizing net revenues from its operations for the benefit of soldiers and their families at Army establishments and for regular contributions to the Army Welfare Fund.

### ***Education of Dependents***

124. At locations in Canada where civilian school facilities are not available for the dependent children of members of the Armed Forces, the Department of National Defence operates 58 primary schools. In the current year 565 civilian teachers are employed at these schools and approximately 14,200 students are in attendance. These schools operate to standards and under arrangements worked out with the Departments of Education in the provinces concerned.

125. For the children of Canadian servicemen serving in Belgium, France, Germany and the United Kingdom, nine schools are being operated at present under temporary arrangements. During the current year 105 teachers and 9 principals are giving instruction to approximately 2,000 children. The teachers are on loan from various school boards from all across Canada and the curriculum is based on standards used by provincial Departments of Education throughout Canada. It is expected that the programme for constructing schools at Canadian service esta-

blishments in Germany and France will be completed by the late summer of this year and during the next academic year instruction will be provided from kindergarten to Grade 13 for some 4,000 children by a teaching staff of more than 150.

### ***Transportation of Dependents***

126. Members of the Armed Forces serving a tour of duty with operational units in the United Kingdom or in continental Europe may store their furniture and effects in Canada and move their dependents overseas at public expense, provided that their Commanding Officers are able to certify that suitable accommodation is available. By December 31, 1954 the costs of moving had been met for a total of over 8,000 wives and children of personnel serving in Europe with the Canadian Infantry Brigade and Canadian Air Division. An amount of \$3,512,000 has been provided in the 1955-56 estimates for the movement of dependents between Canada and Europe, including the United Kingdom.

### ***Pay and Allowances***

127. During the period under review no general changes have been made in the rates of basic pay, progressive pay or trades pay; nor have any changes been made in subsistence allowances, ration allowances, marriage allowances or separated family's allowances. A rate of pay and appropriate allowances, however, was established for Private 1st Class holding the appointment of Lance Corporal. The current monthly rates of pay and allowances are shown in the table on page 35.



**DEPARTMENT OF NATIONAL DEFENCE**  
**Table of Monthly Pay and Allowances for the Armed Forces Effective 1 December, 1953**

RANK		Basic Pay	Progressive Pay				Group Pay for Tradesmen and Specialists				Subsistence Allowance		Ration Allowance	Marriage Allowance	Separated Family's Allowance				
			Years in Rank		Group		Personnel not in receipt of Marriage Allowance	Personnel in receipt of Marriage Allowance	Personnel not in receipt of Sub-sistence Allowance	Personnel in receipt of Sub-sistence Allowance	with Children								
			3	6	9	1					2	3			4	\$	\$	\$	\$
Navy	Army	R.C.A.F.	Ord Sea* (under 17 yrs).	Pte* (under 17 yrs).	AC2* (under 17 yrs).				10	25	45	60	61	91	30	30	61	91	
Ord Sea (entry).	Pte (entry).	AC 1			AC 1	10	25	45	60	61	91	30	30	61	91	30	30	61	91
Ord Sea (trained).	Pte (trained).	LAC.	10			10	25	45	60	61	91	30	30	61	91	30	30	61	91
AB.	Pte 1**.								10	25	45	60	61	91	30	30	61	91	91
Ldg Seaman.	Cpl.	Cpl.	3	3		10	25	45	60	61	91	30	30	61	91	30	30	61	91
PO 2.	Sgt.	Sgt.	5	5		10	25	45	60	72	91	30	30	72	91	30	30	72	91
PO 1.	S/Sgt.	F/Sgt.	5	5		10	25	45	60	81	91	30	30	81	91	30	30	81	91
CPO 2.	WO 2.	WO 2.	5	5		10	25	45	60	81	91	30	30	81	91	30	30	81	91
CPO 1.	WO 1.	WO 1.	5	5		10	25	45	60	92	102	30	30	92	102	30	30	92	102
Midshipman.										61	91	30	40	61	91	30	40	61	91
A/Sub-Lt.	2/Lt.	P/O.	15	15						65	91	30	40	61	91	30	40	65	91
Sub-Lt.	Lt.	F/O.	230	15						89	110	30	40	89	110	30	40	89	110
Comm Offr.			288	15						94	110	30	40	94	110	30	40	94	110
Lt.	Capt.	F/L.	290	25	25					94	110	30	40	94	110	30	40	94	110
Lt-Cdr.	Major.	S/L.	370	25	25	25				113	113	30	40	113	113	30	40	113	113
Cdr.	Lt-Col.	W/C.	460	35	35					126	126	30	40	126	126	30	40	126	126
Capt.	Col.	G/C.	615	35	35					139	139	30	40	139	139	30	40	139	139
Brig-Gen.	Brig.	A/C.	827							153	153	30	40	153	153	30	40	153	153
R/Adm.	Maj-Gen.	A/V/M.	981							165	165	30	40	165	165	30	40	165	165

\* Regular Force.

\*\* Holding appointment of Lance Corporal.

## PART VI

### DEFENCE RESEARCH

#### *General*

128. With improved facilities and a slightly larger staff, the Defence Research Board is now able to increase its effort in research and development for the Armed Services. Reorganization of the Board's headquarters staff makes possible closer co-operation with the Armed Services and a closer continuing scrutiny of the research and development programme to ensure that it is in accord with the ever-changing needs of defence. Because of liaison with related United Kingdom and United States research authorities, the Defence Scientific Service is able to concentrate its efforts on problems for which it has unique facilities or which meet specific Canadian requirements. The Defence Scientific Service participates with members of the Canadian and United States Armed Forces in joint studies in matters of mutual concern for continental defence.

#### *Appropriations*

129. The appropriation requested for the defence research and development programme during 1955-56 is \$52,578,000, an increase of \$2,178,000 over that for 1954-55. The amounts allocated for research, \$22,900,000, and for naval development, \$3,000,000, are the same as last year. The \$4,333,000 allocated for Army development projects is \$767,000 less than last year, not because of any reduction in effort or programme, but because of lower rates of certain expenditures than was estimated. An increase of \$2,945,000 is included in the \$22,345,000 for Air Force development projects and is mainly attributable to the costs of the air armament programme.

130. The \$22,900,000 allotted for research covers the operation of the Defence Research Board's eleven research laboratories situated at Dartmouth, Valcartier, Grosse Ile (Quebec), Ottawa, Kingston, Toronto, Fort Churchill, Suffield (Alberta), and Esquimalt. In addition, this sum meets the costs of the headquarters staff, advisory committees and panels, consultants, the programme of research grants and contracts with Canadian universities, and the construction programme.

#### *Construction*

131. The long-term construction programme for housing all laboratories in permanent buildings is almost completed. With the completion of the Pacific Naval Laboratory at Esquimalt, new and adequately equipped buildings are now provided for most of the laboratories. The Central Laboratory at the Suffield Experimental Station will be completed early next year. However, certain improvements and alterations to existing laboratories, machine shops, stores facilities and services will continue to be necessary from time to time, because of the very nature of research and development work.

### ***Extra-mural Research***

132. The Board's programme of grants-in-aid of research at Canadian universities has been continued at a scale of expenditure that has now levelled off at about \$1,000,000 annually. The object is to support fundamental research in fields related to the defence effort and to assist in the advanced training of scientists. About two hundred grants are awarded annually on an individual basis, and a programme of contracts with universities enables the Board to complement its own laboratory facilities by having certain projects carried out at places where special skills and equipment are readily available.

### ***Arctic Research and Environmental Protection***

133. An Arctic Section of the Defence Scientific Service is closely concerned with military and civilian developments in polar regions, with specialized studies of arctic conditions that may affect military activities, and with the co-ordination of related activities of the Defence Scientific Service. The programme carried out by the Section itself is relatively small, consisting mainly of far-north field projects which cannot be carried out at field stations. Last year several members of the Section went aboard H.M.C.S. *Labrador* to co-ordinate research in ice forecasting and reporting, oceanography and hydrography. Other technical studies were carried out in muskeg regions of the Canadian north and on northern Ellesmere Island.

134. In order to develop better clothing and equipment for servicemen operating under severe climatic conditions, an environmental protection research programme is carried out. The properties and behaviour of various materials are studied in relation to such factors as cold, wind chill, human fatigue, and biting insects. Much of this work is undertaken at or near Churchill, Manitoba.

### ***Human Resources***

135. In the field of human resources, emphasis is being placed chiefly on new methods of training service personnel; on-the-job analysis, design or layout of equipment; and on problems of work organization, especially in the military field. University co-operation and advice is obtained partly in connection with grants and contracts and partly by membership of university scientists on the Human Resources Research Advisory Committee, which now has three specialized sub-committees.

136. Studies were recently completed in this field on radar operator efficiency. Consideration is now being given to how best the results can be incorporated into improved operational procedures.

### ***Medical Research***

137. The new Defence Research Medical Laboratories at Downsview pay attention particularly to problems of the fit man in the military environment. Problems investigated include those associated with high

altitude and exposure; increased gravity forces in jet aircraft; special ration packs; defensive aspects of chemical warfare; intelligibility of communication in aircraft; and personnel selection.

138. Grants-in-aid to medical workers in universities assist studies in a wide variety of fields of military medicine. Special provision has been made to study problems of military personnel in the Arctic, and of radiation injury following explosion of atomic weapons. This extra-mural programme is co-ordinated with those of other government agencies in Canada.

### **Materials**

139. One of the major results of the grants made by the Board is the development of an integrated metallurgical research programme between industry, government and university establishments. An outstanding example, in view of the strategic importance of titanium, is the titanium research programme, in which the co-operating agencies are the Shawinigan Chemical Company, the federal Department of Mines and Technical Surveys, the University of Toronto, Laval University, and Ecole Polytechnique. The co-ordinated effort of this group has shown the possibility of titanium production from the reduction of Canadian ores.

140. Materials research is also being supported in ferromagnetic studies at the University of British Columbia; corrosion and diffusion studies relating to welding of high pressure (naval) steam lines at McGill University; and at the Royal Military College research relating to the measurement of internal friction in metals is being conducted.

### **Gas Dynamics**

141. In the field of gas dynamics, twelve extra-mural grants were made in 1954-55. In the University of Toronto a study was initiated on aerodynamic noise and means for its reduction. At McGill University a major project on combustion of fuels in jet engines was continued. Further fundamental work on the physical and chemical processes of combustion was carried out at Laval University and the University of British Columbia. Other research dealt with supersonic aerodynamics, piston engines and gas turbines.

142. The long-term objectives of the Department of National Defence in relation to guided weapons, together with immediate needs for supersonic aircraft development, necessitate an expansion of the research and test facilities available at the National Aeronautical Establishment. To this end construction of a high-speed wind tunnel is being accelerated and funds will be provided by the R.C.A.F. and the Board to an amount of between three and four million dollars.

### **Telecommunications**

143. The Board's support of physical electronics research at universities continues, with emphasis on the encouragement of groups keenly interested in defence research problems and capable of useful work.



144. The comparatively small scientific staff of the Defence Research Telecommunications Establishment is doing applied research in special fields, and proving the feasibility for military applications of new and improved systems and devices resulting from such research. A large portion of the present effort is devoted to research in support of the Mid-Canada radar warning system. The Board, in co-operation with the Department of Defence Production, is endeavouring to promote in Canadian industry the ability to carry forward engineering development of apparatus proved feasible in laboratories.

### ***Naval Research***

145. The naval research programme has made notable advances in the past year. Several years of research directed to improved submarine-detection capability is nearing fruition. With the virtual completion of the development of protection against corrosion of the exteriors of steel hulls, effort is now directed to prevention of corrosion on internal structures and to problems arising from use in ships of non-ferrous metals, such as aluminum. Basic research is being continued to provide the knowledge necessary to further developments in the naval role.

### ***Special Equipment, Armament and Operational Research***

146. Much of the work of defence research and development relates directly to special weapons and equipment, ammunition and armaments and operational research. Projects vary from the design of special respirators for use in the Arctic to studies of the effects of thermonuclear weapons by means of apparatus simulating the heat and radio-active characteristics of such weapons. For reasons of military security, often little or nothing can be said about many of the projects. But it is hoped that the following paragraphs will help to illustrate the usefulness of what is being done.

147. Research in the explosives and propellants field has resulted in the discovery of a new and more effective process for manufacturing one of the important ingredients of solid field propellants. Work is in progress to increase the effectiveness of Canadian anti-tank weapons; in this connection it is noted that the *Heller*, a platoon anti-tank weapon, was designed and developed exclusively by personnel of the Canadian Army and the Defence Scientific Service and tests indicate that it is the finest known weapon of its type yet developed by any country. The build-up of personnel, experience and facilities for guided missile work has continued at a satisfactory rate. Joint efforts of personnel of the Defence Scientific Service, the Armed Forces and industry have resulted in the accumulation of much useful data from laboratory researches, development tests and firing trials.

148. A new mobile mortar-locating device, incorporating radar, was developed last year as a result of joint efforts of personnel of the Canadian Army and the National Research Council. Another Army project is related to the development of a new tracked carrier for the infantry as a successor to the Universal carrier which, in turn, had succeeded the Bren carrier.

149. The problems of air defence have demanded a considerable part of the total effort of the Operational Research Group of the Defence Scientific Service during the past year and several different sections are engaged in this work. Progress has been made in studies of additional benefits to be derived from early warning of air attack, and the results have been passed to the Military Study Group. Considerable progress has been made also in assessment of guided missiles and manned interceptors in the defence role. Two R.C.A.F. developed navigational aids have successfully met a number of operational trials. Designed for single-seater and two-seater aircraft respectively, these two devices are similar in principle and provide the pilot with immediate homing and distance directions with respect to selected points. Because of the nature of their operation the devices are completely immune to radio jamming. British and United States service experts have shown keen interest in the possibilities of these navigational aids.

150. Various studies relating to air defence will continue, including evaluation of warning lines, assessment of certain weapons, and handling of radar data in the Canadian air defence system. The sections concerned with maritime warfare will continue to study anti-submarine warfare problems. The Army sections will be concerned with the assessment of weapons and problems of northern warfare.

## PART VII

### EQUIPMENT

#### ***Stores and Sub-Contracts***

151. During the first nine months of the fiscal year 1954-55, 101,900 contracts were placed by the Department of Defence Production for defence equipment and stores, amounting to \$747,967,000 in value.

#### ***Naval Equipment***

152. No additional contracts have been placed for new naval vessels during the fiscal year 1954-55. The largest element in the Royal Canadian Navy's shipbuilding programme is the construction in Canada of fourteen destroyer escorts. Design work was begun in 1949; the first keel was laid down on November 22, 1950; and the first destroyer escort, H.M.C.S. *St. Laurent*, is due to commence trials this autumn and efforts are being made to accept her into service by the end of 1955. The next four destroyer escorts are scheduled for trials in 1956. It will be recalled that this programme was undertaken at a time when the original build-up of NATO was begun and when the Korean War added to already heavy demands for construction or conversion of a large number of naval ships. The destroyer escort programme is unquestionably the most challenging of its kind ever carried out in this country. The overall time of production compares favorably with that for similar projects in the United Kingdom and the United States. In consequence of this project Canada has substantially increased the number of skilled workers and design personnel, and the capacity of Canadian electrical and electronics industries has been expanded.

153. During the past year one arctic patrol ship, ten minesweepers, three 75-foot harbour craft and one clearance diving vessel were accepted into service. Arrangements have been made to replace in due course the six minesweepers which were transferred to France as part of Canada's contribution to Mutual Aid.

154. It is estimated that approximately thirty auxiliary craft will be completed by December 1955; included are three ocean-going tugs and one combined mine and looplayer.

155. The conversion and modernization programmes have made substantial progress. Seven "Tribal" class destroyers have been converted, and it is anticipated that the conversion of H.M.C.S. *Crescent* will be completed in 1955. This will make available a second destroyer escort similar to H.M.C.S. *Algonquin*, which commissioned in 1953. Fifteen frigates have now been modernized and the final frigate of the initial programme should be completed this year. So far, ten of these frigates

have been commissioned, and five have been placed in dehumidified reserve at Sydney, Nova Scotia. During 1954 a follow-up programme on frigate conversions has been started for five ships, three to be handled in West Coast shipyards and two in the St. Lawrence River yards.

156. The conversion and completion of H.M.C.S. *Bonaventure*, a light fleet carrier, continues at a rate commensurate with the present target date in the autumn of 1956. This work is being carried out by Harland & Wolff, Belfast, Northern Ireland, and the rate of supply of North American equipment is now satisfactory to the shipbuilders.

157. Delivery of the Banshee jet fighters to replace the piston-engined Sea Furies is scheduled to commence in November 1955. Arrangements for their logistic support are well underway. Canadian production of the CS2F A/S search and attack aircraft to replace the Avenger is proceeding satisfactorily. Deliveries are scheduled to commence in May 1956. Four Sikorsky HO4S-3 utility helicopters are scheduled for delivery this spring. Six Sikorsky HO4S-3 A/S helicopters will be delivered in the summer of 1955 for the formation of an experimental anti-submarine helicopter squadron. A number of helicopters have been obtained for the arctic patrol ship, H.M.C.S. *Labrador*.

### **Army Equipment**

158. New equipment for the Canadian Army was purchased to a total value of \$95,270,000 during the past year. Most of this equipment was produced in Canada, but some was obtained from the United Kingdom or the United States.

159. The production programme in Canada included wheeled vehicles of commercial and military types, guns of various calibres, mortars, rocket launchers, ammunition, and other miscellaneous stores. Among the items received during the year was a new personnel parachute, which has an improved performance and lower landing speed. A new Canadian-developed, light-weight mortar base plate is now in service in the Canadian Army, and the U.S. Army, after having carried out tests, has ordered a number for use; manufactured from a high grade aluminum alloy, this base plate is more durable than the heavy base plate formerly used. Additional quantities of a Canadian short-range radio set were received from production and the equipping of the Canadian Army with these new sets is now completed. A new long-range set will be in production shortly, and it is expected that it will be available to the Canadian Army late in 1955.

160. Equipment obtained from outside of Canada included armoured fighting vehicles and some of the heavy wheeled vehicles not produced in Canada. The Regular Force is now equipped with the British Centurion tank. A British type of armoured scout car has also been issued to regular units. In addition, the Canadian Army is conducting trials on British and United States Army types of armoured personnel carrier to determine their suitability to meet the needs of the Canadian Army.



### **Air Force Equipment**

161. Development of a supersonic, long-range, all-weather, delta-wing fighter is being undertaken by Avro Aircraft Limited, Malton, Ontario. In the light of aircraft development plans in allied countries, and in view of special geographic considerations in air defence operations in Canada, it has been necessary to start this project at this time in order to meet our needs some years hence.

162. A number of pre-production models are being ordered for comprehensive tests and development. This will ensure a sound operational aircraft configuration prior to full production and should reduce considerably the overall time from design to production of aircraft for squadron use. While the first test aircraft are to be powered with United States built jet engines, subsequent aircraft will be powered by Canadian designed and produced engines, if current development is successful.

163. Production and delivery of the CF-100 Mk 4 is now well under-way at Avro Aircraft Limited. This version of the CF-100 is powered by the Orenda XI engine which is produced by Orenda Engines Limited, Malton, Ontario. Crew training on this aircraft is being carried out at the Operational Training Unit, presently being moved from North Bay, Ontario, to Cold Lake, Alberta. As deliveries increase, the CF-100 Mk IV will gradually replace the CF-100 Mk III in all-weather fighter squadrons. It is planned to convert Mk III's to dual trainers which will increase pilot training efficiency. Development and evaluation trials are being conducted constantly to increase the performance and fire-power of the CF-100. Future plans call for the replacement of the present armament with highly destructive rockets and guided missiles.

164. Sabre production by Canadair Limited, Cartierville, Quebec, is on schedule. The Sabre V production was completed in November 1954 and delivery of the Sabre VI began in December 1954. The latest type of this aircraft is equipped with the Orenda XIV engine. The improved performance of Sabres fitted with the new engine has substantially increased the operational life of these aircraft and it is expected that it will maintain for some time the place of the Sabre VI as one of the most formidable fighters in its class.

165. Silver Star (T-33) jet trainer production has been reduced as aircraft unit establishments have been filled. The production schedule now calls for a quantity sufficient to meet anticipated replacement needs. This aircraft is made by Canadair Limited at Cartierville, Quebec.

166. The R.C.A.F. is taking delivery of a number of P-2V7 Neptune aircraft from the U.S. production line of the Lockheed Aircraft Company. These aircraft will be employed in a maritime reconnaissance role and will replace the World War II Lancasters which were converted for this role as an interim measure. Canadair Limited is under contract to produce the CL-28, a long-range maritime reconnaissance aircraft, which is a modified version of the Bristol Britannia. Although the prototype of this model is now under construction, it will be some time before the production models will be available.

167. Two additional Bristol 170 transport aircraft were ordered from the Bristol Aeroplane Company in the United Kingdom. These aircraft will be used to effect air delivery of urgently required parts from the R.C.A.F. depot at Langar, England, to the various fighter wings in continental Europe.

168. A small number of Otter aircraft was ordered from the De Havilland Aircraft Company of Canada Limited. These will be used to transport equipment and personnel during construction of the Mid-Canada line sites which are not accessible to conventional transport aircraft.

169. During the past year six Piasecki H-21 helicopters were obtained for search and rescue operations. Ten Sikorsky S-55 helicopters were procured for use in the construction and maintenance of the Mid-Canada line and additional arrangements are being made to obtain as soon as possible a number of Piasecki H-21C and Sikorsky S-58 helicopters for these duties.

170. The R.C.A.F. purchased sixteen Cessna L-19A aircraft for use by the Canadian Army for training operations in the air observation role. This type will replace the Auster aircraft.

171. Delivery of sixty Chipmunk aircraft from De Havilland Aircraft Company of Canada is scheduled to commence this summer and to be completed by mid-1956. These aircraft, together with aircraft of this class already held, will be used to provide pre-Harvard training at R.C.A.F. flying training schools.

## PART VIII

### CONSTRUCTION

#### **Contracts**

172. A total of 402 major construction contracts was undertaken for the Department of National Defence during the period April 1 to December 31, 1954. These contracts totalled \$89,322,280, of which contracts amounting to \$86,242,274 were undertaken and supervised for the Department by other agencies.

#### **Navy**

173. Contracts were let for dredging and for the construction of a sea-wall and fill area for the seaward defence base at Sydney, N.S. A similar project at Esquimalt was delayed because further engineering studies were required to meet the unusual and difficult soil conditions encountered.

174. The gun-mounting and torpedo shops in the R.C.N. armament depot at Dartmouth, N.S., were completed early in the year. Other major projects completed were an electrical workshop and a physical and recreation training building at Esquimalt; a new building for the Naval Division at Regina; an administration building for the naval supply depot at Ville La Salle, Quebec; an electrical workshop building at the naval air station at Dartmouth; and a new officers quarters at Halifax.

175. Construction for the new ammunition depot at Rocky Point, B.C., made generally satisfactory progress, although bad weather caused some delay. Contracts were let for the jetty and water supply. The project is expected to be virtually finished in May 1955. Completion of the armament depot at Longueuil, Quebec, was delayed by a lengthy plumbers' strike in the Montreal area. At Kamloops, B.C., an aerial tramway between the railway line and the armament depot is under construction, along with a new reservoir and water supply.

176. Occupation of the laboratory and administration areas at Bedford Basin at Halifax is now well underway. Construction of a new supply school at Ville La Salle is well advanced and a contract was let for two additional storage buildings for the supply depot. A contract was also let for a supply building in the R.C.N. barracks at Esquimalt.

177. Other major projects under construction include a cadet block at Royal Roads, near Esquimalt; a barracks block at Gloucester, Ontario; a headquarters building for the Commanding Officer, Naval Divisions, Hamilton; and a new hangar in the air station at Dartmouth, N.S.

### **Army**

178. The permanent construction programme is well advanced at all locations, although considerable delay resulted from an unusually wet summer. This delay was most evident at Camp Gagetown, Montreal and Edmonton, but more favourable progress was made with the advent of dry fall weather.

179. Contracts for all the utilities have been awarded at Camp Gagetown. Several contracts for clearing and grubbing are already completed. Construction of the gravel packed wells has also been completed. Contracts have been awarded for twenty-three of the buildings which will provide troop accommodation, administrative and training facilities. Planning has proceeded for the married quarter and school development, and initial contracts for clearing have been awarded. The estimated completion date for approved construction at Camp Gagetown is late 1956.

180. Construction of service areas containing warehouses, supply depots, garages and heating plants proceeded at Montreal, Cobourg, London, Winnipeg and Edmonton. Additional buildings are being added to the Ordnance Depot at Cobourg. A central heating plant and warehouse have been completed at London for 27 Central Ordnance Depot. Contracts for administrative buildings are now progressing at Winnipeg and Edmonton. Unacceptable work on the warehouse roofs at Winnipeg caused a delay in this project; this is now being corrected.

181. Contracts have been let and construction is underway at Valcartier, Petawawa, London, Winnipeg and Edmonton for living accommodation and messes, administrative and training facilities, schools, married quarters and utilities for field units of the Army. Design and siting of similar accommodation is underway for Sarcee. In addition, progress has been made in the programme for permanent accommodation and training facilities at schools of instruction across Canada.

### **Air Force**

182. The R.C.A.F.'s ordinary construction programme, having passed its peak, will nevertheless require a substantial amount of construction to meet operational needs. Runways of air defence command bases are being extended to meet the requirements of the latest types of aeroplanes with which the Service is being re-equipped. There is a continuing programme for fire-resistant hangars to replace wooden hangars of wartime construction, especially at locations where new and expensive aircraft must be housed. Expenditure on the new and increasing radar defences in the north will also continue for some time.

183. During the past year approximately 230 completed buildings (excluding married quarters) were accepted by the R.C.A.F. from construction agencies. Among these buildings were the new supply depots at Downsview, Ontario, and Namao, Alberta; a new type cantilever aircraft maintenance hangar at Uplands, Ontario; and new headquarters



buildings to house the Air Defence Command at St. Hubert and the Air Materiel Command at Rockcliffe, Ontario. Operations have also commenced at the vast station opened at Cold Lake, Alberta, locale of the R.C.A.F.'s new armament test ranges.

184. Among the major projects recently commenced are new accommodation at Le Collège Militaire Royal de St-Jean; additional domestic and technical buildings at Uplands; and recreation facilities at Downsview, Winnipeg, and several isolated radio station sites.

## PART IX

### DEFENCE APPROPRIATIONS

#### **General**

185. Estimates for 1955-56, together with estimates and actual expenditures for fiscal years 1950-51 to 1953-54 inclusive, and estimates and forecasted expenditures for the fiscal year 1954-55 are summarized by Services and by standard cost categories in the tables on pages 58 and 59.

186. "Forecasted expenditures" represent the latest available appraisal of the amounts likely to be expended by March 31, 1955, in the light of the rate of actual expenditures. "Cash disbursements" are the sum total of cheque issues in a fiscal year, while "budgetary expenditures" are the total charges in a fiscal year against the annual appropriation applicable to that year.

#### **Comparison by Services**

187. For 1955-56 cash disbursements are estimated to exceed those forecasted for 1954-55 by \$125,621,000. This increase is distributed by Service as follows:

<i>Service</i>	<i>Amount of Increase</i>	<i>% Increase</i>
Navy .....	\$ 8,318,000	6·6
Army .....	39,227,000	31·2
Air .....	61,404,000	48·9
DRB .....	5,449,000	4·3
Mutual Aid (Cash Disbursement) ....	6,234,000	5·0
Other .....	4,989,000	4·0
Total Increase	<u>\$ 125,621,000</u>	<u>100·0</u>

188. Increased estimated expenditures in the Navy for 1955-56 are due to an increase in personnel and operating and maintenance costs arising from the growth of the Navy. It is estimated that this will be partially off-set by somewhat lower expenditures for equipment. The estimated increase in Army expenditures is largely owing to estimated increases for construction, with some increase in expenditure for equipment, principally ammunition. In 1955-56 Air Force estimates are higher partly because of modest increases for military personnel costs and for equipment, but mainly because of estimated expenditures for continental defence, chiefly on account of the Mid-Canada line. Expenditures for research and development are estimated to increase because of increased expenditures on development for the Air Force.

189. The provision for estimated cash disbursements of the Navy, Army and Air Force in 1955-56, as shown in the table on page 58, are comprised of monies to be voted and monies from Special Accounts as follows:

<i>Service</i>	<i>Appropriation</i>	<i>Special Accounts</i>	<i>Total Cash Disbursements</i>
Navy .....	\$323,318,000	\$ —	\$323,318,000
Army .....	410,312,000	90,000,000	500,312,000
Air .....	873,404,000	7,000,000	880,404,000

190. The Special Accounts comprise funds credited to the Accounts in respect of transfers as Mutual Aid of equipment acquired prior to March 31, 1950, under Section 3 of The Defence Appropriation Act, 1950, and credits arising from sales of equipment to other governments pursuant to Section XI of The National Defence Act. Credits of the latter type consist almost entirely of logistic support provided by the R.C.A.F. to the U.S.A.F. in connection with Pinetree operations.

191. Expenditures from the Special Accounts are made solely for the purchase of equipment and, in the case of the Army, virtually all equipment purchases in 1955-56 with the exception of maintenance equipment items are being financed from funds in the Special Accounts.

### ***Mutual Aid***

192. While the direct cash disbursements for Mutual Aid which are for the procurement of equipment directly on the Mutual Aid Account and for contributions to NATO military budgets and NATO Common Infrastructure programmes are estimated to be higher in 1955-56, the overall expenditures on Mutual Aid will be substantially reduced. Since 1950 Canada has transferred to NATO member nations substantial amounts of equipment that were on hand in 1950. This programme is nearing completion and there is a consequent reduction in the amount of equipment available for transfer in 1955-56. In the four years since 1950, Canada has also transferred a considerable amount of equipment produced as a result of steps taken to increase Canadian capacity for defence production. This equipment includes F-86 aircraft, minesweepers, certain types of ammunition and other equipment procured in the first instance for the Canadian forces. There will be a further decrease in Mutual Aid expenditures due to reduction in the amount of this type of equipment that will be available for transfer as Mutual Aid from service stocks in 1955-56. Expenditures on production contracts placed directly for the purpose of Mutual Aid will be only slightly lower in 1955-56 than in 1954-55. These expenditures will be almost entirely for production programmes already undertaken for Mutual Aid. Expenditures for contributions to NATO military budgets and NATO Common Infrastructure programmes will increase. Expenditures on NATO aircrew training will be slightly lower than in 1954-55 due mainly to a reduction in capital charges on this account. The tables on pages 55 to 57 show expenditures on Mutual Aid by fiscal year and the distribution by recipients.

193. Because of the heavier expenditures envisaged for defence of the North American continent, which are vitally important to the strength of the North Atlantic Community, provision has not been made in the 1955-56 estimates for expenditures that would involve substantial new financial and production commitments on the Mutual Aid Account in subsequent years.

#### ***Contributions to NATO Infrastructure and Military Projects***

194. Canada's contributions to the annual budgets of commonly financed NATO military headquarters and to NATO Common Infrastructure programmes are made in accordance with cost-sharing formulae recommended by the North Atlantic Council and accepted by national governments.

195. The total Canadian contributions to Common Infrastructure programmes, based on the latest estimates furnished by NATO, are summarized in the table on page 55. In previous years Canadian contributions to the costs of NATO Common Infrastructure programmes and to the budgets of NATO military headquarters have been paid partly from the Mutual Aid appropriations and partly from the general appropriations of the Department of National Defence under the heading "Contributions to the Military Cost of NATO". In the fiscal year 1955-56 the whole of these contributions will be charged to the Mutual Aid appropriations.

196. Expenditures on this account have been lower than estimated, but in the light of programmes now started, it is expected that expenditures will increase in 1955-56.

#### ***Comparison by Standard Cost Categories***

197. The table on page 59 sets out appropriations and expenditures for the last five years and estimates for 1955-56. These figures are discussed in the following paragraphs, with the exception of contributions to Infrastructure and NATO Budgets which have been dealt with above.

#### ***Military Personnel Costs***

198. Military Personnel Costs include the costs of pay and allowances for the Regular and Reserve Forces, food, clothing, medical and dental supplies, and travel and transportation. These expenditures are expected to exceed estimates by about \$17 million in 1954-55. This is largely the result of a high average rate of recruiting during the year.



199. It is estimated that these costs in 1955-56 will be approximately \$22 million more than in 1954-55 because of the greater numbers in the Armed Forces. The following table shows a comparison of the 1955-56 estimate and 1954-55 estimate for travel and removal expenses, which is an important item under this heading:

	(Thousands of Dollars)	
	Estimates 1954-55	Estimates 1955-56
Service transfers and postings including movement of dependents and effects		
(a) reinforcement and rotation of overseas formations .....	9,723	7,538
(b) other transfers and postings .....	12,622	14,420
Transportation on leave .....	1,342	2,061
Temporary duty travel including short course training .....	13,445	14,787
Civilian travel .....	2,810	3,103
Reserve Forces, Cadets and Others .....	3,541	3,888
Totals	43,483	45,797

### Procurement of Equipment

200. The following table sets out a comparison of estimates and forecasted expenditures in 1954-55, and estimates for 1955-56:

Equipment Items	Estimates 1954-55	Forecasted Expenditures 1954-55	Estimates 1955-56
Aircraft and Engines .....	\$430,500,000	\$333,000,000	\$324,514,000
Ammunition .....	101,535,000	70,920,000	94,478,000
Ships .....	93,000,000	80,000,000	73,000,000
Electronics .....	65,666,000	47,054,000	57,543,000
Armament .....	40,133,000	43,510,000	35,560,000
Vehicles .....	41,981,000	36,850,000	32,672,000
Tanks and A.F.V.'s .....	26,064,000	5,000,000	5,769,000
Misc. Technical Equipment	13,821,000	11,070,000	11,989,000
Special Training Equipment	11,500,000	7,510,000	9,706,000
Other .....	27,376,000	29,344,000	29,667,000
Totals	\$851,576,000	\$664,258,000	\$674,898,000

201. In 1954-55 expenditures on aircraft are expected to be about \$97 million less than estimated. Notwithstanding this decrease in expenditures, aircraft production schedules have been maintained substantially as planned. However, engine and spares requirements for Orenda and Nene engines were re-examined during the year on the basis of actual performance experience and it was possible, because of excellent experience on both of these engines, to reduce considerably earlier estimates of requirements. The re-scheduling of production based on reduced requirements resulted in lower expenditures. Additionally, because of the high performance of the Mk VI Orenda-powered F-86 aircraft, it has not been necessary during the period to initiate production of a replacement for the

F-86. Aircraft expenditures in 1955-56 are estimated at a slightly lower level than in 1954-55. The trend to lower costs resulting from increased efficiency of the Canadian aircraft industry which was important in reducing expenditures in 1954-55 below estimates, together with somewhat lower rates of production planned for the CF-100, F-86 and T-33 programmes, will more than offset expenditures on replacement programmes for naval aircraft, maritime reconnaissance aircraft and the all-weather interceptor aircraft.

202. Deliveries of ammunition from Canadian production will fall short of the quantities on which the estimates for 1954-55 were based, with a resulting reduction in expenditures. Delays in production were caused by technical problems encountered in the course of production of certain types of ammunition. In 1955-56 deliveries from Canadian production lines now established are expected to increase considerably. These increased deliveries will result in higher expenditures in 1955-56, but since certain inventory pre-payments are made in the course of production, the increase in expenditures is not proportionate to the expected increase in deliveries. Additional expenditures are also expected in connection with ammunition, to be procured from United States sources, for support of the 1st Canadian Air Division in Europe.

203. Expenditures on ship construction in 1954-55 are expected to be about \$13 million less than estimated. For the most part, this has occurred on the anti-submarine escort and minesweeper programmes and is about equally distributed between the two. Estimates for 1955-56 are based on the present ship construction programme with no major new programmes being contemplated. The reduction of expenditures in 1955-56 is mainly attributable to completion of the arctic patrol vessel, and lower expenditures are expected on the programme of modernizing frigates which should be largely completed in 1955-56.

204. Expenditures on electronics in 1954-55 are expected to be approximately \$18 million less than estimated. The estimate for 1954-55 did not adequately take into account the time needed to resolve problems of design, development and production on new equipment in this intricate field. In 1955-56 expenditures are expected to increase on account of programmes now in hand.

205. The reduction in expenditures on armament estimated for 1955-56 is for the most part a reduction on Army account because of completion, or substantial completion, of expenditures on certain sizeable programmes for fire control equipment.

206. In 1954-55, expenditures on vehicles are expected to be somewhat lower than estimated largely because of a detailed review of vehicle establishments of the R.C.A.F. in the course of the year which resulted in a reduction of vehicle purchases from those on which the estimates were based. The major share of expenditures on vehicles is on account of the production of military pattern vehicles for the Army. Expenditures on this production are expected to be somewhat lower in 1955-56 resulting in an overall reduction in total expenditures on vehicles.

207. By reason of a change in the United Kingdom arrangements for production of armoured fighting vehicles, it was not necessary to order a number of Centurion tanks, with a consequent saving in 1954-55.

208. The lower expenditures than estimated on special training equipment in 1954-55, have, in the main, occurred in the manufacture of flight simulators and mobile training units in the R.C.A.F. because of the necessity to make certain modifications in design. Expenditures on these programmes are expected to be higher in 1955-56.

### ***Construction***

209. Construction expenditures in 1954-55 will be about \$60 million less than estimated. The estimate for 1954-55 was not sufficiently discounted for the lead time on construction work involved in detailed planning and organization of construction projects including the acquisition of housing sites. Adverse weather conditions also delayed construction operations. The planning work done in 1954-55 will result in a substantially larger amount of work in hand at the commencement of the 1955-56 year with resulting increased expenditures, particularly on major Army installations such as Gagetown and Petawawa.

### ***Operations and Maintenance Costs***

210. In 1954-55 expenditures for operations and maintenance are expected to be about \$24 million less than estimated. About \$20 million of this amount is accounted for because the total number of overhauls of aircraft and engines was considerably lower than was estimated. Some savings have been possible in the procurement of materials and supplies, including barrack stores, as the result of the normal review of the provisioning programmes in the course of the year. Some delays have been experienced in securing deliveries of spare parts of a highly technical nature, resulting in reduced expenditures. Expenditures on civilian salaries are expected to be about \$12 million more than estimated, offsetting to some extent reduced expenditures on other accounts. The increased expenditure on civil salaries and wages is for the most part attributable to the estimate being based on an average salary rate for prevailing rate employees which applied at the time the estimates were prepared and did not allow for subsequent increases in wages.

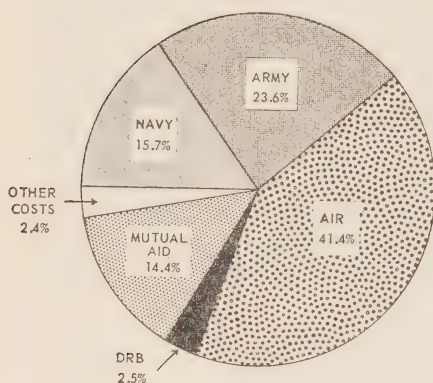
211. The estimate for 1955-56 is approximately \$43 million more than expected expenditures in 1954-55. The major increases are for overhaul of aircraft, repairs and spare parts for equipments, and salaries and wages. These are in general the result of the growth of the Forces both in personnel and equipment but are also affected by certain costs related to the installation of the Mid-Canada line.



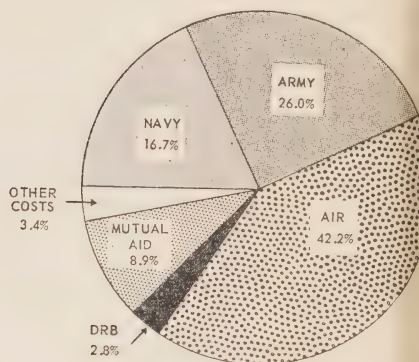
# DISTRIBUTION OF DEFENCE DOLLAR

## BY SERVICES

1954-55

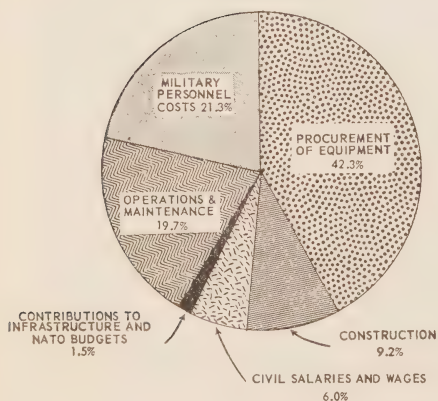


1955-56

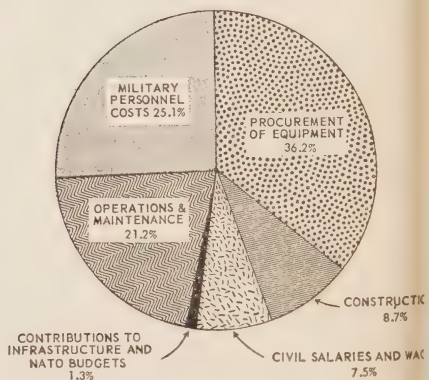


## BY REQUIREMENT

1954-55



1955-56





## DEPARTMENT OF NATIONAL DEFENCE

## Canadian Contributions to Infrastructure and NATO Budgets

(Thousands of Dollars)

I—CANADIAN PORTION OF INFRASTRUCTURE PROGRAMME

Infrastructure Programme	Total Value of Programme	Total Canadian Obligation	Canadian contribution as Percentage of Programme
	\$	\$	%
1951 Programme.....	343,095	15,199	4.43
1952 “.....	503,846	26,855	5.33
1953 “ (1st Part).....	215,875	13,470	6.24
1953 “ (2nd Part).....	183,480	13,082	7.13
1954 “.....	246,895	17,603	7.13
1955 “.....	222,585	15,870	7.13
Totals.....	1,715,776	102,079	

II—EXPENDITURES ON INFRASTRUCTURE BY FISCAL YEAR

Fiscal Year	From Special Infrastructure Appropriation	From Mutual Aid Appropriation	Total Expenditure
1951-52.....	1,770		1,770
1952-53.....	7,080(a)	1,198	8,278(a)
1953-54.....	9,651	1,866	11,517
1954-55 (Forecasted).....	6,000	5,500	11,500
1955-56 (Estimates).....		22,500	22,500
Total Expenditures.....	24,501	31,064	55,565

(a) Expenditures of \$3,307,234 in 1952-53 on ex-infrastructure (i.e. on facilities over minimum SHAPE standards) are not included.

III—EXPENDITURES FOR NATO BUDGETS BY FISCAL YEAR

Fiscal Year	From Special Appropriation	From Mutual Aid Appropriation	Total Expenditures
1951-52.....	1,749		1,749
1952-53.....	914	938	1,852
1953-54.....	870	787	1,657
1954-55 (Forecasted).....	1,000	500	1,500
1955-56 (Estimates).....		2,500	2,500
Total Expenditures.....	4,533	4,725	9,258

**DEPARTMENT OF NATIONAL DEFENCE**  
**Expenditures on Mutual Aid Programmes by Fiscal Year**

(Thousands of Dollars)

Elements of Programmes:	Expenditure 1950-51	Expenditure 1951-52	Expenditure 1952-53	Expenditure 1953-54	Forecast Expenditure 1954-55	Estimate 1955-56
Procurement of Material for Mutual Aid.....	.....	2,950	32,833	33,181	23,784	18,116
Transfers of Equipment from Service Stocks:						
(a) Acquired before 31 March, 1950.....	195,417	74,894	55,414	67,829	41,876	9,000
(b) Acquired since 31 March, 1950.....	.....	.....	40,042	114,604	125,053	69,184
NATO Aircrew Training.....	.....	48,552	104,628	71,340	57,000	53,700
Infrastructure and NATO Budgets (*).....	.....	.....	2,136	2,753	6,098	25,000
<b>TOTAL MUTUAL AID.....</b>	<b>195,417</b>	<b>126,416</b>	<b>235,053</b>	<b>289,707</b>	<b>253,811</b>	<b>175,000</b>

(\*) These amounts represent only the portion of Infrastructure costs and contributions to NATO Budgets which is chargeable to Mutual Aid. In addition the following expenditures are applicable to the special Infrastructure vote: 1951-52—\$3,519,000; 1952-53—\$11,302,000; 1953-54—\$10,521,000; 1954-55 (Forecast)—\$7,000,000; 1955-56—Nil.

# DEPARTMENT OF NATIONAL DEFENCE

## Mutual Aid Programmes \*

### Deliveries of Materials and Supplies by Recipient Countries, and NATO Aircrew Training Actual and Estimated Expenditures from Inception to March 31, 1955

(Millions of Dollars)

	Belgium	Denmark	France	Greece	Italy	Luxembourg	Netherlands	Norway	Portugal	Turkey	United Kingdom	Total
<b>TRANSFERS FROM STOCKS—</b>												
Divisional Equipment.....	56.75	11.39	14.51	.....	50.00	.....	56.75	.....	23.60	2.80	.....	163.50
Armament.....	5.49	4.39	13.78	.....	28.95	.73	2.60	.06	9.59	.....	2.59	93.62
Ammunition.....	14.69	4.39	.....	.....	16.95	.58	7.94	2.60	6.73	2.36	4.93	77.81
Mechanical Equipment.....	.34	1.70	5.46	.....	5.33	.01	3.15	.97	.....	4.92	1.72	30.33
Electronic Equipment**.....	.31	.06	11.22	.....	10.57	.....	2.95	.01	2.01	.85	.10	28.09
Aircraft and Engines***.....	.....	.12	.....	.....	.....	.....	.14	1.26	.01	.88	.69	3.10
<b>TRANSFERS FROM NEW PRODUCTION—</b>												
Armament.....	.08	.15	.....	.....	2.64	.....	.81	.....	.....	.02	.....	3.70
Ammunition.....	1.97	3.27	3.85	.....	5.64	.....	3.20	.46	.79	1.41	11.86	32.45
Electronic Equipment.....	3.06	4.41	2.37	.13	9.03	.....	5.55	1.48	.43	.14	16.91	43.51
Aircraft and Engines.....	1.06	.16	4.71	34.41	5.10	.....	1.12	1.05	.48	34.40	107.16	189.55
Ships.....	.....	.....	26.42	.....	.....	.....	.....	.....	.....	.....	.....	26.42
<b>TOTAL VALUE OF TRANSFERS</b>	<b>83.75</b>	<b>25.65</b>	<b>82.32</b>	<b>34.54</b>	<b>134.21</b>	<b>1.32</b>	<b>84.22</b>	<b>8.79</b>	<b>43.64</b>	<b>47.78</b>	<b>145.96</b>	<b>692.18</b>
<b>NATO Air Crew Training</b>												
Infrastructure and NATO Budgets.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	281.52
Further Anticipated Expenditures to 31 March 1955****.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.99
												115.71
												1,100.40

\* This statement is based on actual and estimated shipments of materials and supplies to March 31, 1955, and actual and estimated expenditures on NATO Air Crew Training to March 31, 1955.

\*\* In previous white papers equipment of this type was included in armament as fire control mechanisms.

\*\*\* These amounts include \$21,000 of associated equipment shipped to Portugal and Turkey.

\*\*\*\* Includes progress payments on production items, undelivered and unallocated items which are expected to be cleared before March 31, 1955.

**DEPARTMENT OF NATIONAL DEFENCE**  
**Comparison of Appropriations and Expenditures**

(Thousands of Dollars)

	1950-51		1951-52		1952-53		1953-54		1954-55		1955-56
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Forecasted Expenditures	Estimates
<b>D.N.D. Budgetary Components</b>											
Navy (Cash Disbursements)...	111,536	99,849	236,051	182,371	268,225	260,296	332,356	289,031	337,281	315,000	323,318
Army (Cash Disbursements)...	221,267	231,665	508,342	473,066	549,485	503,390	533,007	436,376	506,595	461,085	500,312
Air (Cash Disbursements).....	229,693	230,553	727,632	650,525	871,832	912,710	1,018,019	914,984	989,500	819,000	880,404
D. R.B.....	24,915	23,415	32,496	35,394	42,000	42,989	42,000	40,807	50,400	47,129	52,578
Mutual Aid, Infrastructure and NATO Budgets.....	195,417	195,417	165,966	129,935	351,500	246,355	344,600	300,228	312,000	260,811	175,000
Administration, Pensions, Etc..	21,382	20,889	43,849	41,772	49,217	48,681	59,615	56,812	60,727	58,283	63,272
<b>DEPARTMENT</b>											
<b>Credits to Service Expenditures from:</b>											
(a) Mutual Aid Transfers of Equipment in current production for the Forces.....						40,042	163,215	114,604	152,603	125,053	69,184
(b) NATO Aircrew Training.....			55,800	48,552	112,522	104,628	81,596	71,340	58,900	57,000	53,700
Charges to Special Accounts..	19,886	19,886	49,037	49,037	17,885	(Cr)12,667	83,757	46,379	137,000	99,016	97,000
<b>Budgetary Expenditures.....</b>	<b>784,324</b>	<b>781,902</b>	<b>1,609,499</b>	<b>1,415,474</b>	<b>2,001,852</b>	<b>1,882,418</b>	<b>2,001,029</b>	<b>1,805,915</b>	<b>1,908,000</b>	<b>1,680,239</b>	<b>1,775,000</b>



# DEPARTMENT OF NATIONAL DEFENCE

## Table of D.N.D. Appropriations and Expenditures by Major Categories

(Thousands of Dollars)

Major Categories	1950-51		1951-52		1952-53		1953-54		1954-55		1955-56
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Forecasted Expenditures	Estimates
Military Personnel Costs.....	186,836	184,301	333,295	346,832	437,486	407,148	403,965	400,155	427,878	444,776	466,965
Procurement of Equipment.....	136,390	144,590	671,570	486,212	753,711	718,086	923,617	765,088	851,576	664,258	674,898
Construction.....	77,367	85,820	209,416	173,336	243,834	266,399	224,382	166,861	184,222	124,050	161,453
Operations and Maintenance Costs.....	208,200	191,660	367,005	379,678	475,886	409,266	464,963	439,087	515,324	491,197	534,679
Contributions to Infrastructure and NATO Budgets.....	.....	.....	.....	3,519	28,500	13,438	27,600	13,274	31,000	13,098	25,000
Gross Cash Disbursements...	608,793	606,371	1,581,286	1,389,577	1,939,417	1,814,337	2,044,527	1,784,465	2,010,000	1,737,379	1,863,000
ADD: Mutual Aid Transfers of equipment credited to Special Accounts.....	195,417	195,417	77,250	74,934	80,320	55,414	40,259	67,829	35,000	41,876	9,000
DEDUCT: Charges to Special Accounts.....	19,886	19,886	49,037	49,037	17,885	(Cr)12,667	83,757	46,379	137,000	99,016	97,000
Budgetary Expenditures.....	784,324	781,902	1,609,499	1,415,474	2,001,852	1,882,418	2,001,029	1,805,915	1,908,000	1,680,239	1,775,000









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# CANADA'S DEFENCE PROGRAMME

1956-57

**HON. RALPH CAMPNEY**

Minister of National Defence

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
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## PART I

### CANADA AND THE INTERNATIONAL OUTLOOK

#### *Defence Objectives*

1. The aim of Canada's defence programme and planning is to provide for the security of Canada. Under present and foreseeable conditions this can be done most effectively by close co-operation with our allies in the North Atlantic Treaty Organization, and especially with the United States in relation to the North American area. Our defence plans must also include a capacity to carry out obligations that may arise out of Canada's membership in the United Nations Organization.

2. The primary objective recognized by Canada and our allies is to prevent the outbreak of a third world war. This requires that there must be a powerful strategic bomber force, backed by the means to ensure that this force can be immediately effective under any circumstances, and supported by the forces-in-being required to blunt an attack by a would-be aggressor for long enough to permit the West's retaliatory forces to carry out their role. This combination of forces constitutes the best possible deterrent under present conditions.

#### *Military Factors*

3. In recent months further series of nuclear test explosions by the United States, the United Kingdom and Russia indicate that continuing progress is being made in nuclear weapons technology. There is also no doubt about the steadily improving ability of both East and West to deliver such weapons on far distant targets. These facts, however, do not alter the soundness of the defence policy being followed by Canada and our allies. Rather, they emphasize the urgent need to maintain our position of military preparedness in keeping with the priorities inherent in our aims and objectives.

4. At the present time the retaliatory force of the free world is provided by bombers of the U.S. Strategic Air Command with nuclear weapons produced by the United States. This force is being supplemented by the United Kingdom's growing fleet of "V" bombers and by nuclear weapons being developed by that country. To ensure the effectiveness of the West's major deterrent, it is essential that early warning systems, air defence forces and extensive communication networks be constantly maintained at a high state of efficiency.

5. Since the objectives of the Western Nations are purely defensive, the initiative to attack will always rest with an aggressor power. In the collective defence arrangements of NATO a proper balance must be kept between primarily nuclear forces and so-called conventional forces, the latter being required to act as a shield to prevent the overrunning of the NATO land areas, particularly in Western Europe. Accordingly, appraisals of new weapons, new strategical and tactical concepts, and demands for

increased readiness, mobility and flexibility of forces make it evident that the defence programmes of NATO countries must, from time to time, be adjusted and co-ordinated. Similarly, within each country there must be a steady evolution of civil defence arrangements to reduce the effects of air attacks.

### ***Canada's Role***

6. In the current phase of collective security, Canada's principal support of the West's retaliatory striking power is our contribution towards early warning and air defence on this continent. Reasons of geography and strategy combine to make this an obvious and logical way for Canada to assist our allies in the maintenance of deterrent strength while also providing the essential element for home defence.

7. Canada's naval role is the defence of our coastal areas, as always, and co-operation with our NATO allies in the defence of vital sea lines of communication, particularly in view of Soviet concentration on building up a large modern submarine fleet. Other elements in our defence programme provide for the training in Canada of Army and Air Force elements for commitments at home and abroad, and for the necessary command and administrative organization for the operation of the Services as a whole.

8. Our contribution of one infantry brigade group and 12 fighter squadrons to the NATO Integrated Forces in Europe has a significance greater than their numbers might suggest, partly for reasons of morale and partly because the present urgency is for highly trained forces-in-being, equipped with thoroughly modern weapons.

9. As a result of the build-up in defence strength and organization during the past several years, Canada's Armed Forces are now more effective than ever before in our peace-time history. Present indications are that this substantial level of preparedness will have to be maintained for some years to come, so that we can continue to fulfil our role in the collective arrangements for deterring a major war, while retaining a capacity for carrying out such other tasks in the interests of peace as Canada may undertake.

## PART II

### DEFENCE AT HOME

#### *Air Defence*

10. Since a comprehensive air defence system in North America is vital to the maintenance of the deterrent, Canada and the United States work together in improving the scope and effectiveness of the system. In the light of the best military appraisals of the nature of the threat, manned interceptors will continue to be essential for some time to come. At present nine R.C.A.F. regular squadrons are equipped with CF-100 jet interceptors for this purpose. Substantial improvements have been made in later versions of the CF-100 and measures are being taken for the introduction of air-to-air missiles. The CF-105 supersonic, all-weather jet is being developed to meet an urgent requirement in the next phase.

11. Insofar as Canada is concerned, the principal elements in the continental warning systems are as follows: first, the Pinetree system, which ties in to the Canadian and United States air defence commands a basic radar warning and control system, and through extensive communications networks links up with Canadian and United States interceptor forces; second, the Mid-Canada Supplementary Warning Line, in the vicinity of the 55th parallel of latitude; third, the Distant Early Warning Line (DEW Line), roughly along the 70th parallel from Alaska to Greenland. In addition, warning coverage by seaward extensions is being provided by the United States to prevent outflanking of the overall continental defence system.

12. As a result of Canada-United States agreements signed in Ottawa in June 1955, the United States has undertaken the responsibility for construction and initial operation of certain additional radar stations in the southern part of Canada to augment facilities in those areas, and of others in the Newfoundland-Labrador area for similar reasons.

13. Construction of the Mid-Canada Line under Canadian direction and of the DEW Line under United States direction is proceeding according to schedule. Arrangements are now being worked out for civilian personnel to undertake the bulk of the maintenance and manning for both lines. The costs for building and manning the Mid-Canada Line are being met by Canada; the R.C.A.F. will be responsible for the operational aspects of the Line. Similarly, the United States is undertaking financial responsibility for manning the DEW Line during the initial three-year period; at each main station there will be a joint Canada-United States military group for control of operational functions.

#### *Ground Observer Corps*

14. Within the air defence system the Ground Observer Corps continues to carry out a valuable role. Organized to detect and report

low flying aircraft and to supplement information provided by radars, the Corps consists of more than 80,000 civilian volunteers who man some 5,000 observation posts and 12 filter centres, which are located strategically across Canada.

15. Additional filter centres are in the process of being organized on the West Coast. Vessels of the fishing fleet on both coasts act as sea-going mobile observation posts and extend the warning capability of the Corps. Aircraft recognition is now being taught to the civilian volunteers in order to increase their effectiveness.

16. From time to time units of the Ground Observer Corps carry out special "alerts", and the ability of the Corps to fulfil its functions has been tested both by local and large-scale exercises.

### ***Mobile Striking Force***

17. The Mobile Striking Force, including Army and Air Force components, is maintained for defence against possible enemy lodgements in Canada. The Army component consists of three infantry battalions and supporting arms, specially trained for airborne operations, particularly in the northern areas of Canada. The R.C.A.F. component is made up of elements from Tactical Air Command and Air Transport Command for air reconnaissance and airlift support for Mobile Striking Force operations.

### ***Royal Canadian Navy***

18. The strength of the fleet, at December 31, 1955, is set out in the table below. This includes three Prestonian Class frigates which have since been transferred to the Royal Norwegian Navy under a bilateral agreement between Canada and Norway, in accord with the spirit of NATO collective defence measures.

**Strength of the Fleet—at December 31, 1955**

<i>Class of Ship</i>	<i>In Commission</i>	<i>In Reserve</i>	<i>Undergoing Conversion</i>	<i>Under Construction</i>
Light Fleet Carrier ....	1	—	—	1
Light Cruisers .....	2	—	—	—
Destroyer Escorts .....	12	—	—	13
Arctic Patrol Ship ....	1	—	—	—
Frigates .....	10	6	5	—
Coastal Escorts .....	7	21	—	—
Coastal Minesweepers..	8	—	—	6
Patrol Craft .....	1	5	—	3
Miscellaneous Craft....	9	5	—	—
Repair Ships.....	1	1	—	—
Auxiliaries .....	126	58	—	18

### ***Notes***

In addition, there are 3 Frigates and 6 Coastal Escorts on loan to other Government Departments and 3 Submarines on loan to the R.C.N. from the Royal Navy.

Miscellaneous craft and auxiliaries include survey ships, supply ships, diving tenders, harbour and fire tugs, rescue craft, assault craft, harbour ferries, work boats and oil-tankers.



19. At the same date there were also in service 123 aircraft at the Navy's air station at Dartmouth, with H.M.C.S. *Magnificent*, or in conjunction with naval reserve air squadrons across Canada. It is anticipated that a squadron of new *St. Laurent* Class destroyer escort ships will be formed by the end of this year.

20. Since last summer the Royal Navy's 6th submarine squadron has been based at Halifax for operations under R.C.N. control; this has greatly facilitated anti-submarine training in the Atlantic area for units of the R.C.N. and the R.C.A.F. Maritime Command.

21. The R.C.N.'s arctic patrol ship, H.M.C.S. *Labrador*, worked last summer with units of the United States Navy in sea supply operations for the DEW Line and did much of the preliminary survey for operations in the Foxe Basin area.

22. Naval Headquarters at Ottawa exercises control of the Navy through three principal commands: Atlantic Command, with headquarters at Halifax; Pacific Command, with headquarters at Esquimalt; and R.C.N. (Reserve) Divisions, with headquarters at Hamilton. In addition to 22 Naval Divisions for the R.C.N. (Reserve) at cities in Canada from coast to coast, the Navy also operated 46 other shore establishments last year, including dockyards, training establishments, supply depots, magazines, armament depots, and naval radio stations. Also required last year were 22 recruiting offices, including six mobile units.

### **Canadian Army**

23. At December 31, 1955, the Canadian Army (Regular) had 390 units activated in Canada and abroad. There was a decrease of 12 units during the past year owing to the withdrawal of units from Korea. The Regular Army comprises the NATO forces, which consist of 2nd Canadian Infantry Brigade Group in Europe and Headquarters 1st Canadian Infantry Division, 1st and 3rd Canadian Infantry Brigades in Canada; the 4th Canadian Infantry Brigade; the Mobile Striking Force, supporting units and a number of static units and installations for the command and administration of the Army as a whole.

24. At the same date, there were 486 units in the Canadian Army (Militia) and 29 units in the Supplementary Reserve. These figures reflect no change in the total number of units since the preceding year.

25. It is anticipated that a number of units will occupy their permanent home stations at Camp Gagetown and Edmonton during the latter part of 1956. Further movement into Camp Gagetown will be progressive as new construction becomes available in 1957.

27. Towards the end of 1955 an appraisal was made of the Canadian Army (Regular Reserve), which was organized during the first half of 1954. The appraisal indicated that, all things considered, continuance of the plan for further evaluation was not warranted. Accordingly, it was arranged that enrolments in, or transfers to, the Regular Reserve would cease as of February 1, 1956. On completion of their current terms of engagement, members in this subcomponent will be entitled to apply for transfer to the Canadian Army (Regular), the Canadian Army (Militia), or the Supplementary Reserve, or be released.

### ***Royal Canadian Air Force***

28. At December 31, 1955, the R.C.A.F. had in operation 41 squadrons and 3,076 aircraft. Twenty-one of these squadrons were for the defence of Canada; the 1st Canadian Air Division, in Europe, comprised 12 squadrons; four squadrons were required for the R.C.A.F.'s transport operations at home and abroad; three maritime squadrons operated in conjunction with other Canadian and NATO forces for the defence of Canada's east and west coasts; and No. 408 squadron carried out photographic duties.

29. At the same date the R.C.A.F. operated a total of 461 regular and reserve units. This included seven command and group headquarters, 41 squadrons, and 154 other units such as flying schools, ground and operational training units, supply depots, search and rescue units, and a considerable number of self-accounting pay units and isolated detachments. As in the past, the 85 reserve units and university squadrons were assisted by regular force personnel.

30. A reorganization of the R.C.A.F. auxiliary squadrons is now in process and arrangements are to be announced in the very near future.

### ***Co-operation in Civil Defence***

31. Recognizing the very widespread loss of life and the effects on the economy of the country that would result from air attack with modern weapons, a policy on Armed Forces assistance in Civil Defence was formulated and announced during 1955. In essence, this policy provides that the Armed Forces will be prepared to come to the immediate assistance, for limited periods, of a local Civil Defence organization or temporarily to take over its functions in an extreme situation when it has been rendered incapable of carrying out its task. Such assistance is to be given in the same manner as has been rendered on occasions of civil disasters and emergencies.

32. The co-ordination and control of military forces, whether naval, army or air, for employment in civil defence has been allocated to the Canadian Army. Accordingly, appropriate arrangements have been made within the Armed Forces; members of the Services have participated in training at the Civil Defence College at Arnprior, and elements of the Armed Forces have taken part in civil defence exercises. Plans envisage the continuance of this programme in full co-operation with civil defence authorities.

### ***Search and Rescue***

33. For the R.C.A.F. Search and Rescue service, 1955 was one of the most active years on record. From its rescue co-ordination centres located at Vancouver, Edmonton, Winnipeg, Trenton, Halifax and Torbay (Nfld.), 375 missions were organized, requiring search and rescue aircraft to fly more than 5,460 hours. In 49 instances these aircraft, manned by specially trained crews, participated in aerial searches for missing or distressed aircraft of civilian or military registry, fishing vessels, or pleasure craft.

34. In addition, the search and rescue organization was called upon to carry out 160 "mercy flights" for the evacuation to hospital of seriously ill or injured persons, mostly from isolated arctic stations. Also noteworthy was the part played by search and rescue aircraft in helping to combat forest fires in Northern Ontario.

35. While the R.C.A.F. has the prime responsibility in Canada for co-ordinating search and rescue operations, it is assisted by elements of the R.C.N. and the Canadian Army, agencies of the federal and provincial governments, and certain civilian agencies with facilities suitable for this work. In accordance with the international practice, especially in cases of marine distress, aircraft and ships of the Canadian Forces have from time to time given assistance in emergencies outside of Canada's territorial limits, and our Search and Rescue Service has been assisted by ships and aircraft of other countries, particularly those of the United States.

36. One of the areas in which R.C.A.F. Search and Rescue units will meet with increasing problems is the rapidly developing Canadian North, where distances are great and where communications and airfield facilities are not as extensive as in the more settled areas of Canada.

#### ***Canada-United States Mapping***

37. In carrying out their prime defence functions each of the Armed Forces and the Defence Research Board not infrequently undertake projects which have a civilian as well as a military value. Insofar as economic considerations permit, every effort is made to co-operate with interested non-defence agencies and to pass on to the public the benefits of such work. For example, a long-term project has been in hand for some time now to map this country in accordance with agreed Canada-United States military standards. While the agency responsible for this work in Canada is the Army Survey Establishment under the Royal Canadian Engineers, close liaison and co-operation is maintained with the R.C.A.F. and the appropriate branch of the Department of Mines and Technical Surveys. During 1955 alone the R.C.A.F.'s No. 408 (Photographic) Squadron carried out 2,000 hours of air photography and electronic distance measurement from the air.

38. The current objective of the Canada-United States defence mapping programme is to produce the more urgently needed maps now, while obtaining aerial photographic and geodetic records over as wide an area as feasible so that maps of any required locality can be produced at short notice.

39. Another project in a somewhat similar field concerns oceanographic and other studies of Canada's coastal and arctic waters by naval officers and scientists. The R.C.N. expects to be able to publish soon detailed navigational information of direct value to civilian as well as naval shipping.



# **PRINCIPAL EXERCISES, JANUARY TO DECEMBER, 1955**

Exercises	Dates	Principal Force and/or Units Involved	Area	Nature of Exercise
BULL DOG III	23 Feb-8 Mar 55	Canadian Army Units Involved: Hq. Western Command, 1st Bn. Princess Patricia's Canadian Light Infantry, One Coy. 1st Bn. Royal 22 <sup>e</sup> Regiment, Sub-units of Mobile Striking Force, Supporting Arms and services.  R.C.A.F. Units Involved: Hq. 1st Tactical Air Command, Supporting aircraft from Nos. 435 and 436 Squadron.	Northwest Territories (Yellowknife Area)	Operational training for Arctic warfare by the Mobile Striking Force and testing of new operational techniques and equipment.
FAR CRY	15 Apr-1 May 55	R.C.A.F. No. 407 Maritime Squadron.	Canadian Arctic Islands	Ice reconnaissance
SAPLING	20 Apr-11 May 55	No. 1 Radiation Detection Unit R.C.E., U.S. Army and Air Force.	Nevada Proving Grounds, U.S.A.	Radiation monitoring exercises in an area contaminated by nuclear explosion
NATO NEW BROOM III	4-8 May 55	R.C.A.F. Aircraft, U.S.N. Ships, submarines and patrol craft.	West Atlantic Area	Anti-submarine warfare training. All forces deployed to control of R.C.N. and R.C.A.F. East Coast Commanders
FOGRANK	5-7 Jun 55	R.C.N. Ships, submarines and aircraft.	West Atlantic Area.	Tactical exercise
FAR CRY	15 Jun-20 Jul 55	R.C.A.F. No. 407 Maritime Squadron.	Resolute Bay	Ice reconnaissance for D.O.T., R.C.N. and U.S.N. resupply and survey vessels
CARTE BLANCHE	20-28 Jun 55	Allied Air Forces, Central Europe.	Europe	Major spring manoeuvre
RIISING STAR	7-12 Aug 55	R.C.N. Aircraft.  Canadian Army Units Involved: Hq. 1st Canadian Infantry Division, Two infantry brigade headquarters, One armoured regiment (less one squadron), Two field artillery regiments, One light anti-aircraft regiment, One field engineer regiment, Seven infantry battalions and supporting arms and services of the division.	Maritimes  Camp Gagetown	Support of ground forces  To test Hq., formations and units of 1st Canadian Infantry Division in their operational role in conventional warfare



# **PRINCIPAL EXERCISES, JANUARY TO DECEMBER, 1955**

Exercises	Dates	Principal Force and/or Units Involved	Area	Nature of Exercise
SABRE	8-13 Aug 55	Hq. 2nd Canadian Infantry Brigade, One armoured regiment, One field artillery regiment, One engineer field squadron, Two infantry battalions, Elements of supporting arms, and services.	Camp Wainwright	An exercise to practice the brigade group in its role as a fighting formation
ARGUS	16 Aug 55	2 & 4 Allied Tactical Air Forces A.D.C., U.K.	France U.K. Belgium Holland	Exercising Air Defence
DEAD GOOSE	7 Sep-22 Oct 55	Canadian Army Units Involved: Hq. Anti-Aircraft Command 127 Medium Anti-Aircraft Battery.	Goose Bay Area	Firing practice and site development
NATO NEW BROOM IV	8-19 Sep 55	R.C.N. Ships, submarines and aircraft R.C.A.F. aircraft U.S.N. Ships, submarines and patrol craft.	West Atlantic Area	Anti-submarine warfare training. All forces deployed to control of R.C.N. and R.C.A.F. East Coast Commanders
COMMON-WEALTH IV	14-19 Sep 55	1st Canadian Infantry Brigade, Elements of Northern Army group, Europe	West Germany	Land and air manoeuvre under conditions of atomic warfare
SEA ENTERPRISE	21-28 Sep 55	R.C.N., R.N., U.S.N. and Royal Norwegian ships and aircraft.	North Sea Area	Large scale tactical exercise
NATO LIFELINE	21 Sep-2 Oct 55	NATO and national authorities	Major NATO commander's areas	Paper exercise of NATO commands regarding control, protection and reception of shipping and onward distribution of cargos
FOXPAW	1-4 Oct 55	2 & 4 Allied Tactical Air Forces, U.K.-based R.A.F. and U.S.A.F.	Europe	SHAPE exercise testing atomic policy and plans
CORDEX IV	3-8 Oct 55	R.C.N. Ships and aircraft, R.N. submarines.	Halifax approaches	Exercises in the seaward defence of Halifax area
CORDON BLEU	13-17 Oct 55	4 Allied Tactical Air Force	Europe	Major Autumn exercise
PACTRAEX 56L	4-18 Nov 55	R.C.N. Ships, U.S.N. Ships and submarines, U.S. Aircraft.	Pacific Coast U.S. Area	Large scale tactical exercise with units of the U.S. Pacific fleet

# **PRINCIPAL EXERCISES, JANUARY TO DECEMBER, 1955**

Exercises	Dates	Principal Force and/or Units Involved	Area	Nature of Exercise
CRACKER JACK	5-6 Dec 55	Canadian Army Units Involved: Hq. Anti-Aircraft Command, 2nd Anti-Aircraft operations room, 127th Medium Anti- Aircraft Battery R.C.A.  R.C.A.F. Units Involved: A.D.C. Regular, U.S.A.F., A.D.C. and S.A.C.	Canada-U.S.	Joint and combined Army-Air Force exercise to provide training and test air defences

NOTE: In addition to the above-mentioned principal exercises, elements of the Canadian forces carried out numerous routine and other operational training exercises. For example, the individual units of the Mobile Striking Force continued to carry out tactical exercises at company, battalion and brigade levels. H.M.C. Ships carried out anti-submarine exercises with submarines and R.C.N. and R.C.A.F. aircraft; training cruises for R.C.N. cadets training under the VENTURE, R.O.T.P. and U.N.T.D. plans; and sea training for officers and men doing courses at the various schools.

## PART III

### DEFENCE ABROAD

#### ***North Atlantic Treaty Organization***

40. An outstanding event in the development of NATO last year was the accession of the Federal Republic of Germany to the Organization. The military forces that Germany is now building up as an integral part of NATO will go far to strengthen the defence capabilities of the Alliance and Germany's participation in the Organization should prove to be a major contribution to the unity of Europe, to the security of the free world and, thereby, to the cause of peace.

41. The Defence Ministers of NATO countries met in Paris in October 1955 to exchange views and to hear reports from NATO military authorities, including Supreme Commanders, members of the Standing Group, and a representative of the Canada-United States Regional Planning Group. At the regular Ministerial Session of the North Atlantic Council in Paris on December 15 and 16, 1955, the Council discussed NATO defence planning and approved measures designed to give new impulse and direction to future defence efforts of the Alliance and to ensure even closer co-operation in this field.

42. The Council expressed the firm determination of all member governments to see NATO forces equipped with the most modern weapons and noted with satisfaction that substantial progress could be achieved in this respect as a result of the valuable assistance of the United States, the United Kingdom and Canada. It also devoted major attention to improving the arrangements for air defence and warning in Europe, and accepted recommendations for the re-organization and closer co-ordination of air defences in NATO European countries so as to integrate further NATO activities in this vital field.

#### ***Canada and NATO***

43. Almost everything Canada is now doing in the military field relates quite naturally to our participation in NATO. The Canada-U.S. region is an integral part of the North Atlantic Treaty area and what is being done here has a direct bearing on the defensive strength of the Alliance as a whole. In the European areas of NATO in time of peace as in the event of an emergency, Canadian forces are pledged to serve alongside the forces of our allies, and they will continue to do so as long as the mutually agreed need exists. Recognizing that the fulfilment of the earnest desire of all NATO member countries for enduring peace depends, in the foreseeable future, very largely upon the unity and strength within NATO, Canada welcomes the growing desirability of broadening the scope of the Alliance beyond its present lines.

44. The Royal Canadian Navy has 40 warships currently earmarked as this country's contribution for the defence of coastal waters in the Canada-United States region and for the NATO naval forces under the

control of the Supreme Allied Commander, Atlantic (SACLANT), whose headquarters are at Norfolk, Va. The Canadian Army's 2nd Infantry Brigade Group is on duty in Germany, in accordance with our commitment to assist the Supreme Allied Commander, Europe (SACEUR) in maintaining integrated forces in Europe. The four wings of the R.C.A.F.'s 1st Canadian Air Division continue to serve at their allocated bases in France and Germany, also as part of the NATO integrated forces under SACEUR. The planned conversion from Sabre V to Sabre VI aircraft in the 1st Air Division is now being completed and arrangements are going forward on schedule for the replacement of four of the present Sabre squadrons by CF-100 squadrons, to begin later this year.

### ***Canadian Mutual Aid Programme***

45. Since its inception in April 1950, the Canadian Mutual Aid Programme has resulted in the provision of military assistance to eleven of our NATO allies to an estimated total value of \$1,275 million. The principal elements in the Programme are the transfers of equipment from Service stocks and from current production, and the training in Canada of aircrew from other NATO countries; also included are Canada's contributions to NATO common infrastructure programmes and for the budgets of the NATO military headquarters and the NATO International Staff Secretariat.

46. At December 31, 1955, under the NATO aircrew training plan carried out at R.C.A.F. establishments in Canada, a total of 1,741 pilots and 2,130 navigators, including observers, had graduated and a further 939 trainees were on course. These trainees have come from Belgium, Denmark, France, Greece, Italy, The Netherlands, Norway, Portugal, Turkey and the United Kingdom.

47. In accord with the North Atlantic Council's recently expressed aim of getting all NATO forces equipped with the most modern weapons, Canada's Mutual Aid Programme for 1956-57 will continue to emphasize transfers of equipment of the latest types.

### ***Legal Status in NATO Countries***

48. The status of members of the Canadian Forces who may be stationed or present on official duties in any of the following NATO countries: Belgium, Denmark, France, Greece, Italy, Luxembourg, The Netherlands, Norway, Portugal, Turkey, the United Kingdom and the United States of America is governed by the multilateral agreement known as the NATO Status of Forces Agreement, among those countries and Canada, which was signed in London, England, on June 19, 1951. Denmark, Italy and Portugal deposited their instruments of ratification during 1955, the other States having done so in 1953 and 1954.

49. Under the NATO Status of Forces Agreement the Canadian Forces may exercise the criminal and disciplinary jurisdiction conferred on them by the National Defence Act in those NATO States where Canadian Forces are stationed. The receiving NATO State exercises a concurrent jurisdiction but, in matters of particular concern to Canada,



the Canadian Forces have the primary right to exercise jurisdiction. The Agreement provides for the manner in which the Canadian Forces may enter and depart from NATO countries, confers privileges relating to the import of supplies by the Canadian Forces free of duty, and provides for mutual co-operation in the fields of criminal investigation and foreign exchange control. Ancillary procedural arrangements are established by less formal bilateral agreements between Canada and the NATO States in which Canadian Forces are stationed. Claims against Canada by nationals of the receiving NATO State, arising out of the activities of the Canadian Forces in its territory, are assimilated to claims arising out of the activities of the forces of the receiving State. The cost incurred in settling such claims is shared by Canada and the receiving State, 75 per cent being borne by Canada and 25 per cent by the receiving State.

50. Until May 1955, the status of Canadian Forces in the Federal Republic of Germany was governed by Allied High Commission Law No. 69 which extended to the Canadian Forces the same privileges and imposed upon them the same obligations as those extended to and imposed upon forces of the United Kingdom, France and the United States of America. Canadian Forces were not, however, stationed in the Federal Territory as "occupation forces" but as part of Canada's contribution to the defence forces of NATO. On May 5, 1955, the occupation regime in the Federal Republic terminated in accordance with the Protocol signed in Paris in October 1954, by the three Occupying Powers and the Federal Republic of Germany, whereupon an adaptation of the Bonn Convention of 1952 respecting the rights and obligations of foreign forces and their members in the Federal Republic of Germany came into effect and will continue to govern the status of Canadian Forces in Germany until arrangements based on the NATO Status of Forces Agreement are concluded. To that end the Status of Forces Conference began in Bonn in October 1955. Countries taking part in the Conference are the Federal Republic of Germany and those countries with forces stationed in the Federal Territory, i.e., Belgium, Canada, Denmark, France, The Netherlands, the United Kingdom and the United States of America. Because of the comprehensive nature of the subjects to be dealt with at the Conference, it is difficult to estimate how long the Conference may be expected to last.

51. Where dependents accompany members of the Canadian Forces in any of the above-named countries, their status as dependents is officially recognized in the agreements governing the status of Canadian Forces. From a practical point of view dependents enjoy substantially the same privileges as Canadian servicemen.

#### ***Canada and the United Nations***

52. As a member of the United Nations Canada has undertaken certain commitments which currently require a limited number of personnel of the Armed Forces to serve in various areas from the Middle to the Far East. The Canadian element of the Commonwealth Contingent, Korea, under the United Nations Command, is being reduced to about 40 members of the Royal Canadian Army Medical Corps and the Royal Canadian Dental Corps. In the Kashmir area the Canadian Army provides nine

officers for duty with the United Nations Military Observer Group, India and Pakistan. In Palestine four Canadian Army officers have been serving with the United Nations Truce Supervision Organization and Canada, at the request of the Secretary-General of the United Nations, has now agreed to send five additional officers.

53. In consequence of the Indo-China Cease-Fire Agreements concluded at Geneva in July 1954, Canada undertook, along with India and Poland, to provide International Supervisory Commissions in Viet-Nam, Laos, and Cambodia. While the Department of External Affairs has the responsibility for Canada's commitment, the Canadian Army acts as the executive agent for our Armed Forces in providing most of the personnel for the Canadian Delegations, as well as other assistance. These duties currently involve 80 officers and 41 other ranks of the Canadian Army and three officers each from the R.C.N. and the R.C.A.F., including a naval adviser and an air adviser to the Canadian Commissioner in Viet-Nam.

54. Although the primary task of military regroupment under the terms of the Indo-China armistices has been completed, the Commissions and their fixed and mobile inspection teams have continuing responsibilities under other provisions of the Cease-Fire Agreements. In their supervisory and mediatory role the Commissions and their teams are making a positive contribution to the maintenance of peace in Indo-China.

## PART IV

### MANPOWER

#### *Introduction*

55. Conditions envisaged for any future war require that there must be immediately available substantial forces-in-being, trained to the highest possible state of operational readiness. Consequently, primary emphasis continues to be placed on the Regular Forces. Since the Reserve Forces will continue to provide the base from which the Regular Forces can be supplemented, expanded, or reconstituted, particular attention is given to quality and to the practical aspects of training undertaking at summer camps.

#### *Strength*

56. The strength of the Forces is shown in the table on page 18. Throughout the past year the figures for the Regular Forces remained fairly stable, being 116,715 at December 31, 1955, and 117,003 at December 31, 1954. During the first quarter of 1955 they increased, reflecting a normal seasonal trend experienced in other years; for the balance of the year, however, there was a levelling off and some decline. During 1955 as a whole, the strength of the Navy increased by 417, and the Air Force by 1,580; while the Army decreased by 2,285.

#### *Enrolments and Wastage*

57. Enrolments for the Armed Forces declined during 1955 as compared with the previous year. The major reason for the smaller numbers enrolled was that in recent years deficiencies in a number of branches in each of the Services have largely been made good and the emphasis in recruiting has been shifted to those branches where continuing or specialist vacancies exist. Not only was there a reduction in the number of categories for which recruits were required, but it was also recognized that conditions of relatively full employment throughout the Canadian economy and gradually rising wage levels in many fields tended to reduce the number of suitably qualified individuals interested in careers in the Forces.





58. The rate of net wastage for the three Services was reduced by about 14 per cent in 1955 as compared with 1954, being slightly higher in the Navy and the Air Force, and substantially lower in the Army.

59. During 1955 the R.C.N. enrolled 3,088 officers and other ranks and wastage totalled 2,671. Voluntary releases included those for non-re-engagement and compassionate releases; this situation approximated that for 1954. Non-voluntary retirements showed some increase and included in this category were personnel released for medical reasons, unsuitability, inefficiency, and those not offered further engagements.

60. The Army's total enrolments last year were 5,937; and net wastage, 8,222. There was a reduction in wastage because a smaller number of men completed engagements in 1955 than in 1954, and because of a decrease in non-voluntary releases for misconduct and medical reasons. Experience indicates that the more selective recruiting methods being employed will lead to reductions not only in these categories of non-voluntary releases but also in those for personnel who are considered unsuitable for further training or employment.

61. During 1955 the R.C.A.F. enrolled 8,153 officers and other ranks and wastage totalled 6,573. Although there was a definite increase during 1955 of the number of personnel who were offered re-engagements and declined, because the number who came up for re-engagement in 1955 was substantially greater than in 1954, the proportions accepting or declining further service were approximately the same in both years. The bulk of Air Force releases, however, continued to be of the non-voluntary type, largely for reasons of inefficiency and unsuitability for further employment or training. In view of the relatively high costs of training aircrew, it is noteworthy that a very high proportion of all short service aircrew who became eligible for regular commissions accepted them. Nevertheless, additional proposals designed to improve the attractiveness of the Service to suitable individuals—and hence to improve manning in those categories for which it is difficult to recruit—are presently under consideration.

### ***Women in the Services***

62. As at December 31, 1955, there were 7,284 women in the Regular and Reserve Forces of the three Services. Of the 3,282 women in the Regular Forces: 132 were in Navy, 198 were in Army, and 2,952 in Air Force. In the Reserve Forces: 822 were in Navy, 2,343 were in Army, and 837 in Air Force, for a total of 4,002.

63. Following approval early in 1955 for the establishment of a women's component as an integral part of the R.C.N. (Regular), transfers from the Reserve and enrolments were started later in the year. By December 31, 1955, there were 14 wren officers and 55 other ranks in the Regular Force, in addition to 63 nurses and medical-technicians.

*Civilian Personnel*

64. At December 31, 1955, there were 54,507 civilians employed directly by the Department of National Defence. These employees comprise: (a) persons filling positions classified in accordance with the Civil Service Act and Civil Service Regulations, and who are recruited for the Department by the Civil Service Commission; (b) persons of similar classifications employed directly by the Defence Research Board in accordance with the National Defence Act; (c) prevailing rates employees who are recruited with the assistance of the National Employment Service and are employed on a continuing basis at hourly or monthly rates of pay and with the same working conditions as for similar categories in other federal government departments; (d) casual employees, mostly labourers, recruited with the co-operation of the National Employment Service and employed with working conditions similar to those for prevailing rates employees, except that the period of employment is temporary.

65. In addition, essential services are provided to the Department by members of the Canadian Corps of Commissionaires and by school teachers on loan from local school boards throughout Canada. Individual commissionaires serving at defence establishments are employed and paid by the Canadian Corps of Commissionaires and the Department reimburses the Corps on a contract basis. Similarly, under arrangements approved by provincial educational authorities, the Department reimburses local school boards in Canada for teachers provided on a loan basis for D.N.D. schools in Canada and abroad; in this way the rights of teachers in their own provinces are maintained in respect of such matters as seniority and superannuation. Further details about school teachers are given in paragraphs 98 and 99.

TABLE I

## Civilian Strength—Department of National Defence

	December 31, 1954			December 31, 1955		
	<i>Classified</i>	<i>Prevailing Rates</i>	<i>Total</i>	<i>Classified</i>	<i>Prevailing Rates</i>	<i>Total</i>
Navy .....	6,210	5,595	11,805	6,659	5,842	12,501
Army .....	12,646	8,302	20,948	12,857	7,950	20,807
Air Force .....	7,963	6,697	14,660	8,743	6,975	15,718
D.R.B. ....	2,162	476	2,638	2,223	494	2,717
Administration:						
(a) Other than						
Inspection Services...	695	19	714	684	19	703
(b) Inspection Services..	2,171	64	2,235	1,999	62	2,061
Total .....	31,847	21,153	53,000	33,165	21,342	54,507

*Notes:*

Above figures include

casual labour totalling

5,187

5,088

Above figures exclude  
commissionaires totalling

1,249

1,399

TABLE II

Civilian Employees at National Defence Headquarters, Ottawa  
(excluding D.R.B.)

	December 31, 1954			December 31, 1955		
	<i>Prevailing</i>			<i>Prevailing</i>		
	<i>Classified</i>	<i>Rates</i>	<i>Total</i>	<i>Classified</i>	<i>Rates</i>	<i>Total</i>
Navy .....	1,251	3	1,254	1,313	3	1,316
Army .....	1,171	8	1,179	1,189	2	1,191
Air Force .....	565	....	565	621	....	621
Inter-Service .....	201	....	201	205	....	205
Administration:						
(a) Other than						
Inspection Services...	628	19	647	599	19	618
(b) Inspection Services..	387	....	387	379	....	379
Total .....	4,203	30	4,233	4,306	24	4,330
<i>Note:</i>						
Above figures exclude						
commissionaires totalling			76			74

## PART V

### TRAINING

#### *Regular Officer Training Plan*

66. Under the terms of the Regular Officer Training Plan, in effect since 1952, selected students who meet the required standards for enrolment are sent at public expense either to one of the Canadian Services Colleges or to a Canadian university. ROTP cadets are enrolled as subordinate officers in the Service of their choice and are supplied with necessary books, instruments and uniform clothing, in addition to receiving free tuition. The rate of pay for cadets is \$60 a month, and those attending universities also receive a subsistence allowance of \$65.00 a month during the university year.

67. On graduation from the Royal Military College, or from a university, an ROTP cadet is granted a regular commission in the Service in which he is enrolled. He has the option of requesting release after serving a minimum period of three years full-time duty after completion of academic training.

#### *Canadian Services Colleges*

68. In 1955 a total of 1,491 applications were received for admission to the Canadian Services Colleges and for entry to universities under the Regular Officer Training Plan. This represented a modest increase over the number of applications received the previous year. Of this number 367 were selected for the Canadian Services Colleges; 192 applicants who had completed their senior matriculation (or equivalent) were admitted to the first year at the Royal Military College and Royal Roads; a further 165 were selected at the junior matriculation level for admission to the preparatory year at Le Collège Militaire Royal de Saint-Jean. Last year's practice of direct entry to the first year at Le Collège Militaire for a limited number of French-speaking students who had completed their classical college B.A. course was continued with ten cadets enrolled under this provision in 1955.

69. Two of the cadets enrolled were granted Dominion Cadetships, a number of which may be awarded each year to suitable candidates who are the sons of officers or men who were killed or incapacitated while serving in the Armed Forces of Canada or who had served at least fifteen years. As has been the case in recent years, these were the only cadets accepted for the Canadian Services Colleges who were not enrolled under the Regular Officer Training Plan.

70. During the past year major steps were taken in carrying out plans to expand the facilities and physical plant of Le Collège Militaire Royal de Saint-Jean. This programme, to cost an estimated \$7,863,000, will



extend over four years and will increase the capacity of the College to 400 cadets. Major construction begun in 1955 included two barrack blocks, an academic building and a physical training and recreational building. In addition, a new barrack block of 160 rooms has been completed at Royal Roads.

### ***Reserve Officer Candidates at Universities***

71. Reserve elements of the three Services are represented at a total of 37 Canadian universities and colleges. Army's Canadian Officer Training Corps (COTC) is represented at 28 of these universities and colleges, while the R.C.A.F.'s University Reserve Training Plan (URTP) and the University Naval Training Divisions (UNTD) have members at all 37.

### ***Officer Candidates in Training at December 31, 1955***

	<i>Navy</i>	<i>Army</i>	<i>Air Force</i>	<i>Total</i>
<b>CANADIAN SERVICES COLLEGES</b>				
Regular Force				
Regular Officer Training Plan (ROTP) .....	187	340	325	852
Cadets from the ranks .....	3	3	1	7
*Reserve Force Cadets .....	14	43	24	81
<b>UNIVERSITIES</b>				
Regular Force				
Regular Officer Training Plan (ROTP) .....	54	203	268	525
Cadets from the ranks .....	18	1	11	30
Reserve Force				
University Naval Training Divisions (UNTD) .....	606	—	—	606
Canadian Officers Training Corps (COTC) .....	—	1,571	—	1,571
University Reserve Training Plan (URTP) .....	—	—	790	790
<b>OTHER PLANS</b>				
Regular Force				
Venture Plan Cadets .....	184	—	—	184
Midshipmen .....	45	—	—	45
†Officer Candidate Programme (OCP) .....	—	123	—	123
Flight Cadet aircrew trainees ..	—	—	773	773
Flight Cadet groundcrew trainees	—	—	23	23
Reserve Force				
Active List Midshipmen .....	27	—	—	27
COTC Command Contingents ..	—	1,249	—	1,249
Flight Cadet aircrew trainees..	—	—	61	61
Flight Cadet groundcrew trainees	—	—	0	0
	<u>1,138</u>	<u>3,533</u>	<u>2,276</u>	<u>6,947</u>

## RECAPITULATION

Regular Force .....	491	670	1,401	2,562
Reserve Force .....	647	2,863	875	4,385
	<u>1,138</u>	<u>3,533</u>	<u>2,276</u>	<u>6,947</u>

\*Army cadets are on the strength of the COTC. Air Force cadets are under the URTP, which is part of the Primary Reserve.

†In addition, 3 cadets from the ranks at the Service Colleges and 1 at a university are on the strength of the OCP, bringing its total to 127.

## Notes—

(1) In addition to the officer cadets and midshipmen listed above, there were subordinate or commissioned officers of the Regular Forces undergoing academic training at Canadian universities at the same date, under special plans, as follows:

	<i>Navy</i>	<i>Army</i>	<i>Air Force</i>	<i>Total</i>
21-month subsidization plan for medical and dental students..	7	18	21	46
ROTP graduates of RMC taking their degree year .....	8	22	11	41
	<u>15</u>	<u>40</u>	<u>32</u>	<u>87</u>

(2) The plans listed above include the chief, but not the only, sources of officers.

**Navy**

72. During 1955 some 420 officers (excluding officer cadets) and 4,000 men participated in training courses at the Navy's nine principal shore establishments. This training covered all aspects of naval science and warfare ranging from new entry training to instruction in advanced weapons usage and maintenance. Owing to the build up of fleet facilities in recent years it was possible to increase considerably the extent of training afloat in 1955, and it is intended to go even further in this direction during 1956.

73. Specialist and post-graduate training was undertaken by 48 officers at civilian universities and specialized Service schools in Canada, the United Kingdom and the United States. Approximately the same number of officers will receive similar training in 1956. In the past certain phases of R.C.N. junior officer training were taken in Royal Navy ships and establishments; under arrangements now in hand all this training, with the exception of submarine training, will eventually be carried out within the R.C.N.

74. In keeping with the modern demand for the highest qualities of individual initiative and steadily improving knowledge of man-management, the R.C.N. Leadership School in H.M.C.S. Cornwallis, near Digby, Nova Scotia, continued to provide special courses in these fields. An average of 120 officers and 160 chief petty officers and petty officers undertake this training annually.

75. In addition to the R.C.N. establishments, 22 Naval Divisions with their Headquarters at the Great Lakes Training Centre in Hamilton carry out an extensive training programme for personnel of the reserves. During the winter months evening training is conducted in each of the Divisions. The Great Lakes Training Centre is the hub of the summer training for the reserves, and last year 201 officers and 1,139 men and wrens undertook training ashore or afloat from the Centre.

76. Naval Reserve Air Squadrons are established in Quebec City, Kingston, Toronto, Calgary and Victoria. In addition to initial flying instruction programmes, these squadrons provide an opportunity for qualified reserve pilots to carry out regular flying practice. In this way a potential pool of young aviators is being developed and maintained. After intensive training one squadron joined H.M.C.S. *Magnificent* for a period last year and participated in regular force operations and exercises at sea.

### **Army**

77. The cyclic training programme which progresses through individual and unit training and which culminates in formation training and simulated war exercises has been found satisfactory for the present needs of the Canadian Army. This training policy provides training methods and courses consonant with modern developments.

78. Along with emphasis on individual skill-at-arms for all ranks, trade and specialist training was conducted in corps schools and units; results continue to be satisfactory. Special weapon training courses have been continued for instructors. The Army Physical Training Cadre is concentrating on maintaining the high standard of physical fitness required, and instructors are now attached to all corps recruit training centres.

79. Full use is being made of major training areas and camps. Although Campagetown is still under development, units from Eastern Canada and some from Western Canada will again concentrate there this year for formation training under field conditions. They will be under command of the General Officer Commanding the 1st Canadian Infantry Division. Headquarters of the 1st Canadian Infantry Brigade and units located in Western Canada will concentrate at Camp Wainwright.

80. Staff training of selected officers is conducted annually. Regular Army officers attend the course at Canadian Army Staff College in Kingston; Militia officers attend the Militia Staff Course, a portion of which is conducted at local units, with the remainder at Royal Military College in Kingston during the summer months.

81. Training and assessment of officers selected as potential unit commanders of the Regular Army will be conducted at the Canadian Senior Officers School in Kingston commencing in September 1956.

82. The Joint Atomic, Biological and Chemical Warfare School at Camp Borden has continued to give special training in ABC warfare to officers and non-commissioned officers of the three Armed Forces and also to selected civil defence personnel.

83. As in former years a tactical study for selected senior officers of the Regular Army, Militia, and Supplementary Reserve was held in Kingston in November. This year the study dealt with the factors affecting, and the possible concepts of, future operations, including the changes which have become necessary as a result of the introduction of nuclear weapons to the battlefield.

84. The soldier apprentice programme inaugurated in 1953 is progressing satisfactorily. The initial two-year training period includes military, academic, and trades training. On completion of this training, soldier apprentices are posted to trade or specialty vacancies in their respective corps. New classes are enrolled annually. It is anticipated the number of apprentices undergoing training will be maintained at approximately 600. Rigid selection and training is intended to produce prospective senior non-commissioned officers.

85. Militia attendance at training in summer camps increased from a total of 16,593 (all ranks) in 1954 to 20,568 in 1955.

### **Air Force**

86. As a result of the continuing appraisal of training methods required to keep pace with modern developments in military aviation, the R.C.A.F. altered the pilot training programme in 1955 to provide all pilots with initial jet training prior to reaching wings standard. Students now receive basic flying training on Chipmunk and Harvard piston-engined aircraft and advanced flying training on Silver Star (T-33) jet-engined aircraft before being awarded pilot wings. After reaching wings standard, pilots receive weapons and operational flying training before proceeding to an operational squadron.

87. Chipmunk aircraft were introduced at one basic flying training school as a pre-Harvard trainer to improve the sequence of training and to help reduce the number of student failures. Chipmunk aircraft will be added to the establishments of the other three basic flying training schools during 1956. There are 12 flying schools engaged in actual flying training of aircrew in the Training Command of the R.C.A.F. These schools produce aircrew for the R.C.A.F., the R.C.A.F. Auxiliary, the Royal Canadian Navy and NATO countries.

88. Officers entering the R.C.A.F. in the technical trades of aeronautical engineer, supply, accounts, armament, and telecommunications receive instruction in the application of their professional knowledge to air force functions and duties. Between 80 and 90 officers take this training annually.

89. In order to enable station commanders and senior officers to devote more of their time to the operational duties at R.C.A.F. stations, a special administrative course has been organized at London, Ontario, for junior officers. By giving junior officers wide and thorough training in the fundamentals of air force administration, they will be better fitted to assume their administrative responsibilities, and it is anticipated that this will result in a substantial contribution to the efficient management and operational effectiveness of air force units.



90. The rate of technical training in the air force has now levelled out sufficiently to permit intensive studies to be made of the quality of training and for the development of advanced courses in certain areas. Among the early results of such studies has been the initiation of a programme to replace with new equipment all training equipment evaluated as obsolescent. A two-week advanced trade supervisory course has been organized at Camp Borden for non-commissioned officers in the technical trades. It has been arranged as an extension of the Supervisors Service Training Course.

91. Approximately 700 officers received training under the Mobilization Assignment Training Plan. The extension of this plan to include non-commissioned officers was developed for 1954 and it is yet too early to determine its capabilities.

92. Enrolments in the Reserve Tradesmen Training Plan totalled 2,250 in 1955; this plan has fully demonstrated its value for increasing the effectiveness of the reserves.

## PART VI

### CONDITIONS OF SERVICE

#### *Terms of Enrolment*

93. During the past year there has been no significant change in the terms of enrolment for officers or other ranks.

#### *Married Quarters*

94. At December 31, 1955, approved plans called for a total of 30,547 housing units for married personnel of the Services, 22,405 of which had been completed and 8,142 were either under construction or not yet contracted for. Of the total, 27,330 units were approved for personnel in Canada and 3,217 for personnel in Europe. The housing units in Canada are, generally, owned by the Department of National Defence, except that in certain urban localities it has become increasingly practicable to have some units provided by private interests. In Europe, the married quarters for Canadian personnel are provided under special rental arrangements.

95. The 22,405 completed units included 16,388 permanent married quarters owned by the Department of National Defence, 578 permanent married quarters rented from other government departments, 1,725 temporary and emergency married quarters, and 788 houses provided in urban areas under the Limited Dividend Corporation scheme administered by Central Mortgage and Housing Corporation, making a total of 19,479 units in Canada, and 2,926 units in Europe.

96. Of the 8,142 units not completed at December 31, 1955, a small balance of 291 units in Europe was still under construction and scheduled for completion early in 1956. The remainder were in Canada and comprised 2,269 permanent married quarters under construction; 2,880 permanent married quarters approved for construction but not yet started; 16 temporary married quarters approved for construction; and 2,686 units approved for building in urban locations by private interests.

#### *Education of Dependents*

97. The Department of National Defence endeavours to ensure that adequate educational facilities are available to school-age dependents of Service personnel and civilians who are resident in married quarters controlled by the Department. Wherever possible such dependents attend local civilian schools and the Department makes appropriate financial arrangements with the civil authorities concerned.

98. However, at locations in Canada where civilian school facilities are not available, the Department operates 65 primary schools. In the current year 776 civilian teachers are employed at these schools and

approximately 20,000 students are in attendance. These schools are operated in accordance with the educational standards of the provinces concerned and financial arrangements are worked out with local authorities.

99. Overseas nine schools are being operated for the children of Canadian servicemen serving in Belgium, France and Germany. The teachers in these schools are on loan from various school boards all across Canada, and the curriculum is based on standards used by provincial departments of education throughout Canada. Instruction is provided from kindergarten to grade 13. Children of Canadian servicemen are also attending a school at Trier, Germany, and the International Schools at SHAPE and Fontainebleau in France; the teachers for these Canadian children have also been obtained on loan from Canadian school boards. There are about 3,300 Canadian children in attendance at these schools overseas, and Canadian school boards have provided 182 teachers.

### ***Additional Facilities***

100. Each of the Services provides facilities for sports, recreation rooms and canteen services on the fullest practical scale. In addition, and with particular reference to personnel serving overseas or in non-urban or isolated areas, provision is made for other facilities such as might be expected in comparable Canadian communities. These additional facilities include chapels, theatres, shopping centres and, at some sites, swimming pools, bowling alleys, and artificial ice rinks. As a matter of policy every project has to be examined on its own merits before funds are authorized for construction.

101. At Werl, Germany, a 250-watt radio broadcasting station has been built and commenced operation on March 21, 1956, for the benefit of Canadian personnel and dependents in Europe. Other recreational amenities include the distribution of films and disc and tape recordings on a wide variety of topics. In the provision of reading and writing materials, especially for personnel overseas or in H.M.C. ships, a good job continues to be done by various civilian organizations.

### ***Maple Leaf Services***

102. Maple Leaf Services has commenced operations as a private non-profit corporation formed in 1954 by the Army in order to concentrate under one centrally controlled organization the operations of canteens and other related facilities. By the end of 1955 these services were being provided in the Canadian Infantry Brigade area in Germany and in Canada at Camp Borden, Kingston, Barriefield, Picton, Cobourg and Camp Petawawa.

### ***Transportation of Dependents***

103. During 1955 some 10,500 wives and dependent children of Canadian servicemen were moved at public expense either to or from Europe. About 70 per cent of these transfers were in connection with the return to Canada of the 1st Brigade or the despatch to Europe of the 2nd Brigade.

***Pay and Allowances***

104. A general increase in pay for all ranks became effective April 1, 1956, based on the increases that have taken place in civilian salary and wage rates since the last general increase in military rates in December 1953. The new rates of pay include provision for increased earnings to trained men as their service increases. This should assist in reducing the loss of trained men on completion of their first engagements.

105. The table showing the new monthly rates of pay and allowances is on page 31.



## DEPARTMENT OF NATIONAL DEFENCE

Table of Monthly Pay and Allowances for the Armed Forces Effective April 1, 1956

RANK	Basic Pay		Progressive Pay		Group Pay for Tradesmen and Specialists				Subsistence Allowance		Ration Allowance	Marriage Allowance	Separated Family's Allowance		
	Years in Rank		Group				Personnel not in receipt of Marriage Allowance		Personnel in receipt of Sub-sistence Allowance	Personnel not in receipt of Sub-sistence Allowance			with Children		
	3	6	9	1	2	3	4	Personnel not in receipt of Marriage Allowance							
Navy	Army	Air Force													
Ord Sea* (under 17 yrs).	*Pte, recruit (under 17 yrs).	AC2* (under 17 yrs).													
Ord Sea (entry).	Pte, (recruit).	AC2.													
Ord Sea (trained).	Pte, (trained).	AC1.					10	25	45	60	61	91		61	91
AB.	Pte, (trained).	LAC.					10	25	45	60	61	91		61	91
	Pte, (higher rate)		20	6			10	25	45	60	61	91		61	91
	Pte, (holding app. L/Cpl).						10	25	45	60	61	91		61	91
Ldg Seaman.	Cpl.	Cpl.	3	3	3		10	25	45	60	61	91		61	91
PO2.	Sgt.	Sgt.	5	5	5		10	25	45	60	72	91		61	91
PO1.	S/Sgt.	F/Sgt.	5	5	5		10	25	45	60	81	91		81	91
CP02.	WO2.	WO2.	5	5	5		10	25	45	60	81	91		81	91
CP01.	WO1.	WO1.	5	5	5		10	25	45	60	92	102		92	102
Naval Cadet *	Officer Cadet**	Flight Cadet**									65	91		61	91
Midshipman.	2/Lt.	P/O.									65	91		61	91
A/Sub-Lt.	Lt.	F/O.	35	15	15						89	110		89	110
Comm. Offr.	S/Sgt or above promoted 2/Lt.	F/Sgt or above promoted P/O.	15	15	15						65	91		65	91
	S/Sgt or above promoted Lt.	F/Sgt or above promoted F/O.	15	15	15						89	110		89	110
Lt.	Capt.	S/Lt.	25	25	25						94	110		94	110
Lt-Cdr.	Major.	S/Lt.	25	25	25						113	113		113	113
Cdr.	Lt-Col.	W/C.	35	35	35						126	126		126	126
Capt.	Col.	G/C.	35	35	35						139	139		139	139
Cmdre.	Brig.	A/C.									153	153		153	153
R/Adm.	Maj-Gen.	A/V/M.									165	165		165	165

\* Regular Force.

\*\* Under the Regular Officers Training Plan.

## PART VII

### DEFENCE RESEARCH AND DEVELOPMENT

#### *Introduction*

106. The Defence Research Board has as its primary role the application of scientific knowledge to the solution of research and development problems of the Armed Forces. The Board is also responsible for advising the Minister on all matters relating to scientific, technical, and other research and development that may affect national defence. In support of these roles, the Board organizes and supports research on problems of defence interest in universities and in other agencies. The fulfilment of these functions has been facilitated in recent months by further development of the organization of the Defence Research Board and by improved liaison with the Armed Forces at the highest levels, and by close co-operation with research and development agencies in the United Kingdom and the United States.

107. The problems attendant on the development of an adequate system of continental defence are likely to be of major concern for some years to come. In working towards practical solutions in this highly complex field, particularly close liaison is maintained with the United States.

#### *Appropriations*

108. The appropriation requested for the defence research and development programme for 1956-57 is \$79,032,389, an increase of about 50 per cent compared with last year. This increase reflects both the challenging nature of the rapid evolution of military equipment needed by the fighting services and the growing ability of Canadian scientific and engineering teams to provide vital assistance to the Armed Forces.

109. Within the total appropriation, \$23,135,389 is for research and covers the costs of operation of the Board's 11 research laboratories at various locations across Canada, as well as the programme of grants and contracts with Canadian universities. The remainder of the appropriation covers the development programmes of the Navy, the Army and the Air Force in amounts of \$5,200,000, \$4,850,000 and \$45,847,000, respectively. The principal increase of some \$23 million is directly related to anticipated expenditures in connection with the CF-105 project and the guided missile programme.

#### *Construction*

110. The Central Laboratory at the Suffield Experimental Station in Alberta was completed and officially opened in September 1955. It is a permanent, three-storey and basement structure, mainly of steel construction, and houses all the laboratories previously located in temporary wartime structures.

111. Owing to increased naval research activities, the floor space at the Naval Research Establishment at Dartmouth, Nova Scotia, has been increased by the extension of two of the existing wings.

#### ***Extra-mural Research***

112. The Board's close concern with scientific research in Canada makes essential the maintenance of an intimate relationship with the universities. To this end, the programme of grants-in-aid for research has been continued with an expenditure of slightly more than \$1,000,000 in the current year. Through these grants, research is carried out on fundamental scientific problems in fields related to defence. At the same time significant contributions are made by university professors of wide experience and ability who act in an advisory capacity on Defence Research Board committees. The Board's support of research in the fields of medicine, human resources, electronics, aerophysics, metallurgy, geophysics, digital computation, and many branches of chemistry is helping to provide an increasing number of scientific and technological personnel to meet future needs.

#### ***Geophysical and Arctic Research***

113. A combined Arctic Research and Geophysical Section is concerned with development of the earth sciences, both world-wide and in the Arctic. In view of the extent of the Canadian northland, this section of the Board sponsors specialized studies in meteorology, oceanography, the upper atmosphere, and applied geophysics, with special reference to Canadian military application.

#### ***Electronics and Telecommunications Research***

114. University research in physical electronics continues to receive strong support from the Board because of the defence value of the projects and because trained scientists in this field are urgently needed in modern defence programmes.

115. The Defence Research Telecommunications Establishment at Ottawa, in addition to providing services of electronic consultants for the Department of National Defence, carries out applied research in selected fields. With the assistance of industrial contractors, investigations are made as to the feasibility for military application of new and improved systems and designs resulting from such research. The major portion of the present effort is devoted to research in support of the Canadian air defence system.

#### ***Medical Research***

116. Military medicine is closely concerned with the healthy serviceman in a military environment and much of the work in this field is related to studies of the factors which increase or decrease a serviceman's ability to perform his duties effectively. A large part of the work is carried out within the Defence Research Board's own laboratories, especially the one at Downsview (near Toronto), but many studies by medical scientists in Canadian universities are sponsored by the Board's programme of grants-in-aid.

### ***Environmental Protection Research***

117. Clothing and equipment for the serviceman must be capable of protecting him against severe climatic conditions and combat hazards which may occur simultaneously. Extremes of cold, heat, rain and wind, missile fragments, and thermal radiation from atomic weapons are all part of the military environment. Protection against these hazards requires basic research on textiles and other clothing and equipment materials, and projects are being carried on for this end.

### ***Materials Research***

118. In the field of materials research, 14 extra-mural grants were made in 1955-56 in support of projects at 10 Canadian universities. These awards continued the integrated metallurgical research programme in industrial, governmental and university establishments. The major emphasis has continued to be directed to the titanium research programme. While much has been learned from United States-supported projects, the application of known and new techniques to Canadian problems has kept Canada abreast of progress elsewhere, and at a very reasonable cost.

119. Support has been given also to programmes aimed at the determination of new or improved techniques in the search for strategic metals. Other studies relating to the corrosion of welded assemblies and materials, as well as an investigation of delay fracture tendencies believed caused by the hydrogen content of high tensile steels, were supported at McGill University and the University of British Columbia, respectively.

### ***Aeronautics Research***

120. A number of special analytical studies relating to fighter and transport aircraft requirements of the Armed Services has been undertaken by the Board. Assistance in these investigations is being extended by the National Aeronautical Establishment.

121. In order to support the continuing development of aircraft and missiles in Canada, a large high-speed wind tunnel is to be constructed at Uplands Airport, Ottawa. The design is progressing and a pilot model has been constructed by the National Aeronautical Establishment.

### ***Civil Defence***

122. The advent of high-yield thermonuclear weapons has necessitated a thorough revision of methods for carrying out civil defence. Accordingly, efforts devoted to civil defence research have steadily increased and basic questions relating to survival in the event of nuclear warfare are being examined in co-operation with Federal Civil Defence authorities.

### ***Operational Research***

123. Operational research within the Department of National Defence has become increasingly concerned with the evaluation of weapons systems and their associated equipments. This can be illustrated with reference to the air defence system, where economical improvements in the overall performance of the system can only be made with full understanding of



how all the various human, mechanical and electronic elements work. Careful studies are made of the inter-action of radar and communications equipment, interceptor aircraft capabilities, and the characteristics of specific air-to-air missiles. Only by such means can it be determined whether, for example, the expenditure of a certain sum on an improved type of electronic device will increase the effectiveness of the defence system more than the expenditure of a similar sum on a different item.

124. Another important field in which operational research proves its value is in the provision of advice for the design and analysis of military trials and exercises.

### ***Guided Missile Research***

125. Shortly after the inception of the Defence Research Board in 1947, a small group of the Board's scientists began studies in the guided missile field. In recognition of future Canadian needs for special air defence weapons, and under arrangements with United States and United Kingdom authorities, the Board concentrated on the family of air-to-air missiles. In 1950 it was decided to undertake a practical but experimental Canadian project. The prime purpose of the project was to build up within the Board's staff and throughout Canadian industry a team of scientists and engineers capable of developing and producing guided missiles in this country, while familiarizing officers of the Canadian Services with problems and techniques involved in using such weapons.

126. Known as the "Velvet Glove", this project has resulted in the training of some 400 specialized personnel in Canada, and has been accompanied by the development of facilities for research, testing and evaluation of guided missiles. A limited number of missiles are being produced, particularly for testing and training purposes at the R.C.A.F.'s establishment at Cold Lake, Alberta. Canadian industry has made progress towards developing design and manufacturing capability in this complex new field.

127. On the basis of this preliminary work Canada is now working out arrangements for the production in this country of a United States type of air-to-air missile, in order to make Canadian interceptor aircraft better able to perform their role in the air defence system.

### ***Service Development Programmes***

128. To ensure that our Armed Forces will continue to receive equipment of the most modern and effective types, studies and appraisals of equipment and weapons are continually being made and a fairly extensive development programme is underway for each of the Services. Naval projects are being carried out in a number of fields, including submarine detection, warship design, communications and radar, erosion in gun barrels, oceanography and ordnance. Some projects have a civilian as well as a naval value, such as the project for developing corrosion preventatives and anti-fouling paints. Others relate particularly to naval ships in action, where improved systems for processing, transmitting and making readily intelligible all operational information between ships at sea is of the utmost importance.

129. For the Canadian Army new equipment under development, undergoing trials, or in process of coming into use, includes a new mine detector, a counter-mortar radar equipment, a larger calibre anti-tank rocket launcher, the M-26 hand grenade, and a vehicle-mounted flame thrower. Arising out of the project for a new tracked carrier for the infantry as a successor to the Universal carrier, the possibility of Canadian development of a range of light, tracked vehicles is now being examined.

130. The principal elements in the R.C.A.F. development programme are the CF-105 project and the guided missile programme. Other projects undertaken include those in such fields as detection equipment, aerial navigation, air equipment engineering, and photographic aids for air reconnaissance.

## PART VIII

### EQUIPMENT

#### **General**

131. During previous years when the strength of the Services was being rapidly increased the emphasis in equipment programmes was placed on clothing, barrack stores, aircraft, ships, and tanks and other military vehicles. The levelling off in the strength of the Armed Forces has made possible some planned reductions in orders for equipment and stores in these categories and during the past year the emphasis has been on electronics and communications equipment. This has been reflected in some 147,700 contracts placed by the Department of Defence Production for defence supplies to a total amount of \$544,214,964 during the past fiscal year.

#### **Naval Equipment**

132. On October 29, 1955, the first Canadian designed and built destroyer escort, H.M.C.S. *St. Laurent*, was commissioned. By her subsequent operational performance this ship has demonstrated an excellent anti-submarine effectiveness. It is expected that four more destroyer escorts of this class will soon be ready for contractor sea-trials and three ships may be accepted by the Navy before the end of the year.

133. In other respects the R.C.N.'s shipbuilding and conversion programmes have also made good progress. Two special duty vessels and 14 auxiliary vessels were completed in 1955. The commissioning of H.M.C.S. *Crescent* in October 1955 completed the destroyer conversion and modernization programme commenced in 1951-52. The initial frigate programme for the conversion of 16 ships has also been completed and a follow-up programme to convert a further five frigates is well underway, three of them being scheduled for completion during 1956. As a result of these conversions the efficiency of these World War II vessels is greatly improved for the modern anti-submarine role.

134. In addition to the vessels whose conversion is expected during 1956, 20 new ships are scheduled for completion, including the destroyer escorts noted above, 14 auxiliary vessels and three inner patrol vessels. H.M.C.S. *Bonaventure* a light fleet carrier, is scheduled for completion in the autumn of 1956 and on coming in to service will replace H.M.C.S. *Magnificent*.

135. One R.C.N. fighter squadron is now equipped with Banshee jet aircraft capable of all-weather operations. A second fighter squadron is scheduled to be equipped with Banshees towards the end of 1956. In order to replace Avenger aircraft presently in use in the R.C.N., CS2F anti-submarine aircraft are being manufactured in Canada; delivery of these aircraft is to commence in the latter part of 1956 rather than in the spring, owing to the strike last year at the plant of the De Havilland Aircraft Company, Limited, Toronto.

136. An experimental anti-submarine helicopter unit has been formed to carry out trials with new underwater detection equipment and to perfect techniques for the use of this equipment.

### ***Army Equipment***

137. New equipment for the Canadian Army was purchased to a total value of \$60,115,000 during the past year. Most of this equipment was manufactured in Canada, but some was obtained from the United Kingdom and the United States.

138. Production in Canada included substantial numbers of wheeled vehicles of commercial and military types, guns of various calibres, mortars, rocket launchers, ammunition, and miscellaneous stores. The new Canadian-developed 3·2-inch rocket launcher (Heller) and the corresponding 3·2-inch rocket ammunition will be introduced into the Canadian Army during 1956. Two new items of communication equipment, the infantry 5-mile radio set and the TA-43 field telephone, will be available to the Canadian Army early this year. Following trials and tests of the 7·62 mm FN rifle a number of improvements were incorporated and an initial delivery of Canadian-produced rifles, known as the FN-C1, will begin during 1956; ammunition for the new rifle is also being produced in Canada.

139. During 1956 delivery is expected of Centurion armoured recovery vehicles ordered from the United Kingdom.

### ***Air Force Equipment***

140. Development work is continuing on the CF-105 long-range, supersonic, all-weather interceptor aircraft and its associated engine programme. To facilitate development of the prototype aircraft in its early stages, a number of J-75 jet engines are being obtained for use by Avro Aircraft Limited of Malton, Ontario. Subsequent CF-105 aircraft are to be equipped with a powerful jet engine, the PS-13, which is being developed by Orenda Engines Limited of Toronto. Considerable test-bed running has already been done by the PS-13 prototype engine.

141. Production of the CF-100 Mk IV by Avro Aircraft Limited has been completed. Deliveries of the CF-100 Mk V, an improved version of the Mk IV, commenced in January 1956. Efforts are continuing to exploit the potential of the CF-100 and to improve its flight performance and fire-power, pending the availability of a supersonic replacement.

142. Sabre Mk VI production by Canadair Limited continues. The R.C.A.F. Air Division in Europe has been partially re-equipped with Mk VI aircraft and this programme is now being completed.

143. The rate of production of Silver Star (T-33) aircraft by Canadair Limited will be slightly reduced in August 1956 on the basis of a revised estimate of the requirement to replace wastage.

144. Engineering development associated with the CL-28 long-range maritime reconnaissance aircraft (a modified version of the Bristol Britannia) is progressing favourably at Canadair Limited. Neptune (P-2V7)



aircraft, procured through the United States Navy, have already replaced a number of World War II Lancasters, in accordance with the R.C.A.F. maritime reconnaissance aircraft replacement programme.

145. Deliveries of the Chipmunk elementary trainer were delayed by the strike at the De Havilland plant; production was resumed on November 1955, with completion scheduled for late 1956.

146. Twelve additional helicopters, six Piasecki H-21's and six Sikorsky S-58's, were ordered and initial deliveries were made during the past year. These helicopters are required for use in transporting personnel, materials and supplies to construction sites of the Mid-Canada Line and they will have essential roles to perform in support and maintenance of the Line when it is completed.

147. Steady progress in lengthening the operational life of jet engines has made possible reductions in the number of jet engines and spare parts required for support.

## PART IX

### CONSTRUCTION

#### *General*

148. Construction required to keep pace with the build up of the Armed Forces has now largely been met by programmes undertaken in recent years. The programme for the Navy has passed its peak. Major projects for the Army are the continuing work at Camp Gagetown and the development of permanent home stations at various locations across Canada. The principal element in the R.C.A.F. construction programme, in addition to meeting current requirements for station and aerodrome development, is the building of the Mid-Canada Line. This project accounts for the rise in total construction expenditures last year to about \$176 million and will be the main reason for the further increase in the coming year for estimated construction expenditures to a total of \$246 million.

#### *Navy*

149. Construction of the sea-wall and fill for the seaward defence base at Sydney, Nova Scotia, was completed and a contract was let for the construction of buildings. Contracts have also been let for the seaward defence building at Halifax, for the sea-wall, wharf and fill-area at Esquimalt, for a bulk storage building at Esquimalt (additional to the supply building completed there in November 1955), and for a jetty, an officers quarters, a building for physical and recreational training and a new runway for jet aircraft at the R.C.N. Air Station, Dartmouth.

150. The new Supply School at Ville LaSalle, Quebec, was partly taken over from the contractors last year and is being completed this year. A new hangar at Dartmouth and the Maritime Warfare School at Halifax are also scheduled for completion this year.

151. The ammunition depot at Rocky Point, B.C., the armament depot at Longueuil, Quebec, and two additional storage buildings for the Naval Supply Depot at Ville LaSalle were completed during the year. A new water supply and aerial tramway were put into operation at Kamloops, B.C. Other major construction projects completed since April 1, 1955, include the cadet block at Royal Roads, near Esquimalt, a barracks block at Gloucester, Ontario, and a headquarters building at Hamilton for the R.C.N. (Reserve).

#### *Army*

152. The Canadian Army's construction programme for supply depots, garages, warehouses, and heating plants is nearing completion at Montreal, Cobourg, Winnipeg, and Edmonton. A new warehouse and an administration building are under construction at London, Ontario.

153. The home station programme for living accommodation, messes, administrative and training facilities is progressing favourably at Camp

Petawawa, Edmonton, Camp Valcartier, Winnipeg and London. Construction has now started on buildings and utilities at Sarcee. Additional training buildings and living accommodation are being constructed at corps schools at Camp Borden, Barriefield, Camp Shilo and Chilliwack. Tenders have also been called for an army hospital at Barriefield.

154. At Camp Gagetown most of the clearing and grubbing contracts have been completed and 87 buildings are under construction. The central heating plant is in operation and is supplying temporary heating to these buildings. Contracts have been awarded for 480 married quarters and a school to accommodate 700 pupils. Plans are being prepared for chapels, a hospital and ancillary buildings.

### **Air Force**

155. Construction of the Mid-Canada Supplementary Warning Line in the vicinity of the 55th parallel of latitude constitutes one of the most challenging and complex projects ever undertaken for the Armed Forces as an all-Canadian project. The R.C.A.F. has the overall responsibility for the project and the combined effort involves close co-operation by a number of government departments and agencies and many private companies and contractors in all parts of Canada. The resources of the Trans-Canada Telephone System are being utilized, this System having named the Bell Telephone Company of Canada to act for it as management contractor. A special division of the Bell Telephone Company was formed to undertake the building of the Line.

156. Twenty-two different types of buildings, ranging in size from aircraft hangars to small survival huts, are being built, with the fullest possible use being made of prefabricated designs. It has also been necessary to design and construct special water and sewage systems, winter roads, airstrips, landing pads for helicopters, "tank farms" for diesel and other fuels, and facilities for testing and installing electronic and communications equipment. Notwithstanding the rigours of climate and geography and the initially large number of "unknowns," construction generally is proceeding according to schedule.

157. In addition to the Mid-Canada Line, the R.C.A.F. programme includes aerodrome development to meet the requirements of the latest types of aircraft in service at Tactical, Training, Maritime, and Air Defence Command bases, as well as accommodation for personnel, messing, technical, and administrative facilities. There is also a continuing maintenance programme for replacing wartime-constructed wooden hangars with fire resistant hangars; renovations and improvements to wartime-constructed buildings, where these can economically fill a present need; replacement and extension to heating facilities; and the provision of increased fire protection services.

158. During the past year 110 completed buildings (excluding married quarters) were accepted by the R.C.A.F. from Defence Construction (1951) Limited. Among these buildings were cantilever-type hangars at Comox, British Columbia; Greenwood, Nova Scotia; Namao, Alberta; and Winnipeg, Manitoba; an arch-type hangar at Uplands, Ontario; barrack blocks at Uplands, Ontario, and Le Collège Militaire Royal de St-Jean, Quebec; and storage buildings at Namao, Alberta.

## PART X

### DEFENCE APPROPRIATIONS

#### General

159. The distribution of the appropriation requested for 1956-57 differs somewhat from 1955-56, as shown in the following table which also gives a breakdown of the expenditures in 1955-56.

<i>Service</i>	1956-57 <i>Estimates</i> (\$000)	1955-56 <i>Appropriations</i> (\$000)	1955-56 <i>Expenditures</i> (\$000)
Navy .....	325,000	311,160	339,242
Army .....	384,822	394,607	406,783
Air .....	774,863	778,383	705,016
Navy, Army and Air Force....	1,484,685	1,484,150	1,451,041
D.R.B. ....	79,032	52,578	64,358
Mutual Aid .....	143,000	175,000	174,966
Other .....	68,283	63,272	59,747
Total .....	1,775,000	1,775,000	1,750,112

#### Services

160. The total estimate for the Navy, Army and Air Force is almost identical to the amount allotted in the 1955-56 appropriation, and there is no major shift from one Service to another. Personnel and operating costs, however, continue to take an increasing share of Service estimates (see table on page 48). Provision has been made for an increase of \$13,000,000 in personnel costs, and of \$45,000,000 in operating and maintenance costs. The estimate for further construction and equipping of the Mid-Canada Line is included in the R.C.A.F. Estimates. The figures for this project are set out separately in the table on page 48. Provision has been made for \$100,000,000 for this project in 1956-57, compared to \$40,000,000 in 1955-56. These increases are offset by reductions in the estimates for procurement of equipment.

#### D.R.B.

161. The increased provision of \$26,000,000 for defence research and development reflects continued emphasis on development of equipment. The allotment for research is \$23,135,389, compared to \$22,900,000 in 1955-56, and for development is \$55,897,000, compared to \$29,678,000 in 1955-56. The major development projects for which the increase is needed are the CF-105 supersonic all-weather aircraft, the associated development of the gas-turbine engine to power this aircraft, and the arming of both the CF-100 and the CF-105 with air-to-air missiles.



### **Mutual Aid**

162. The estimate for Mutual Aid is reduced by \$32,000,000, compared to 1955-56, principally because less equipment will be available from Service stocks for transfer to Canada's NATO partners. There is also a reduction in the provision for direct production for Mutual Aid as contracts undertaken for this purpose in earlier years are nearing completion. In accordance with the policy applied last year, Canada's contributions to the commonly financed NATO infrastructure programmes and military budgets are provided wholly under Mutual Aid. These contributions are determined in accordance with cost sharing formulae recommended by the North Atlantic Council and accepted by national governments. Provision for this purpose is less than in 1955-56 because actual expenditures on these programmes in past years have consistently fallen short of estimates.

163. In the past the value of equipment acquired prior to March 31, 1950, that has been given to members of NATO as Mutual Aid has been credited to the Special Account for procuring more modern equipment for the Canadian Forces. Commencing April 1, 1956, no further credits will be made to this account. There are relatively small quantities of this equipment remaining in Canadian stocks that will be useful to other NATO members and where such equipment is transferred in future it will be valued for Mutual Aid purposes at approximately the cost of repairing and shipping it. As a consequence these transactions will be on a current disbursement basis and the charge to Mutual Aid will be deducted from the expenditures of the Service that incurs them rather than credited to the Special Account.

### **Cash Disbursements**

164. Estimated cash disbursements or cheque issues are shown by Services in the table on page 49 and by cost categories in the table on page 48. In 1956-57 these exceed appropriations by the estimated expenditures from the Special Account. Estimated cash disbursements in 1956-57 are \$16,000,000 less than 1955-56 Estimates.

### **Military Personnel Costs**

165. These costs constitute about 26 per cent of the total 1956-57 Estimates, compared to 25 per cent in 1955-56. By Service the Estimates compare as follows:

	1956-57	1955-56
Navy .....	\$ 80,026,000	\$ 80,212,000
Army .....	198,006,000	202,462,000
Air Force .....	202,133,000	184,291,000
	<hr/> \$480,165,000	<hr/> \$466,965,000

166. The principal items under this heading are pay and allowances, travelling and removal expenses, clothing and food. The provision for pay and allowances is increased in total by \$21,000,000 of which \$15,750,000 is for the Air Force and \$4,500,000 for the Army. In general the increase provides for normal pay increments for personnel of the three Services

by reason of promotion and progressive and trade group pay increases. Provision has also been made for some increase in strength in the Navy and Air Force. In the Air Force the provision for payment of subsistence allowances in 1956-57 has been increased in line with the number in receipt of this allowance and provision is made for increased payments of clothing credit balances. For the Army the provision for pay and allowances for the Militia has been increased by nearly \$3,000,000 to provide for increased attendance at summer training camps and other training activities of the Militia.

167. The provision for travelling and removal expenses is reduced by approximately \$1,000,000 from the 1955-56 Estimates.

168. The 1956-57 clothing estimate is reduced by approximately \$8,000,000 from 1955-56. This reduction reflects the savings in clothing issues resulting from the clothing credit system. This saving is partially offset by the payment of cash clothing credit balances, which involves additional expenditures under pay and allowances.

169. Provision for food supplies in 1956-57 is increased by approximately \$1,000,000 compared to 1955-56, chiefly because it includes provision for the purchase of war reserve rations for the Air Division in Europe.

### **Procurement of Equipment**

170. Excluding the Mid-Canada Line, the total provision for equipment in 1956-57 Estimates is reduced by \$127,000,000 from 1955-56. By the principal items of expenditure, the Estimates are as follows:

<i>Equipment Items</i>	<i>Estimates 1956-57</i>	<i>Estimates 1955-56</i>
Aircraft and Engines .....	\$ 229,699,000	\$ 320,514,000
Ammunition .....	70,172,000	94,478,000
Ships .....	60,000,000	73,000,000
Electronics .....	44,789,000	46,819,000
Armament .....	29,067,000	35,560,000
Vehicles .....	23,513,000	32,672,000
Tanks and A.F.V.'s .....	590,000	5,769,000
Misc. Technical Equipment ....	15,208,000	11,989,000
Special Training Equipment ...	8,898,000	9,706,000
Other .....	50,652,000	29,667,000
<b>Total .....</b>	<b>\$ 532,588,000</b>	<b>\$ 660,174,000</b>

171. For the Navy, Army and Air Force, the comparative estimates for equipment procurement are:

	<i>Estimates 1956-57</i>	<i>Estimates 1955-56</i>
Navy .....	\$ 138,717,000	\$ 150,950,000
Army .....	78,831,000	107,526,000
Air Force ....	256,910,000	353,915,000

172. The production rates of both CF-100 and F-86 aircraft were reduced during 1955. The estimate for 1956-57 provides for continuing production at the reduced rates. Delivery of Neptune aircraft was completed in 1955-56. Most of the Banshee aircraft being procured for the Navy were delivered and paid for during 1955-56. The production of Wasp aero engines for Mutual Aid will be completed during 1956-57 and the estimates are reduced from 1955-56. Estimates for the CL-28 long-range maritime reconnaissance aircraft, on which delivery will commence during 1956-57, are increased from 1955-56. There is also an increase covering pre-production models and production tooling costs for the CF-105. Deliveries of CS2F aircraft for the Navy are expected to commence during 1956-57 and estimates for this programme are somewhat higher than in 1955-56.

173. The effect of all these factors is a reduction of approximately \$91,000,000 from the 1955-56 estimate. This includes a reduction of \$92,000,000 for the R.C.A.F., a reduction of \$3,300,000 on direct production for Mutual Aid and an increase of \$5,000,000 for the Navy.

174. During 1955-56 the ammunition production programme was carefully reviewed and, as a result, delivery schedules were revised to maintain production at reduced rates over a longer period of time. This has resulted in a lower rate of expenditure, reflected in the 1956-57 Estimate. In addition, the production of some kinds of ammunition has been completed. Provision has been made to commence production of the new type small arms ammunition for the Army. The R.C.A.F. estimate provides for procurement of test vehicles for air-to-air missiles. The net result of all these factors is a reduction of approximately 25 per cent in the estimate for ammunition. By Services, the estimate for the Navy is reduced by \$4,000,000, the Army by \$20,000,000 and the Air Force is increased by \$1,800,000. Direct production for Mutual Aid is reduced by \$2,600,000.

175. No new major ship construction programmes were initiated in 1955-56 and none are planned in 1956-57. The 1956-57 estimate is therefore based on the requirements in that year for the present programme. The estimates for construction of H.M.C.S. *Bonaventure* are approximately the same as in 1955-56, and those for construction of anti-submarine escorts, minesweepers and modernization of frigates are all less than last year.

176. Electronics equipment of many kinds continues to be an important requirement of all three Services. The estimate for this type of equipment, excluding the equipment to be procured for the Mid-Canada Line, is approximately \$2,000,000 less than in 1955-56. The reduction in the Air Force is about \$6,600,000 and reflects a reduced carryover of orders into 1956-57 as compared to 1955-56. There is also a reduction of about \$1,800,000 in the estimate for direct production for Mutual Aid on contracts which will be completed in 1956-57. The Navy estimate is increased by approximately \$4,000,000 to provide for an increased rate of expenditures in the programme of improvement



and standardization in the power supplies and navigational equipment aboard naval vessels and in the electrical and electronics equipment of naval aircraft. The Army estimate is also increased by about \$2,000,000 to cover the procurement of new types of wireless equipment.

177. There are no new armament procurement or production programmes that have a significant impact on the 1956-57 Estimates. Expenditures on most of the existing programmes will be less than in 1955-56, except in the case of the Army's increased provision for production of the FN-C1 rifle.

178. The major share of expenditures on vehicles during 1955-56 has been in respect of the procurement of special military pattern vehicles of  $\frac{3}{4}$ -ton,  $2\frac{1}{2}$ -ton and 5-ton capacities. The production of the  $\frac{3}{4}$ -ton vehicles was completed in 1955-56. The 1956-57 estimate provides for completion of the present contracts for the  $2\frac{1}{2}$ -ton and 5-ton vehicles, and estimated expenditures on both of these are considerably less than in 1955-56.

179. The estimate for tanks and armoured fighting vehicles covers estimated final payments in 1956-57 on existing contracts on which deliveries have been substantially completed.

180. The increase in miscellaneous technical equipment is to provide for expenditures estimated at approximately \$5,000,000 for two new types of navigational aids which have been developed by the R.C.A.F. for installation in aircraft and which are expected to be in substantial production during 1956-57.

181. The heading "Other" under Equipment Items includes estimates in respect of the development of equipment. The increase in expenditure is principally attributable to the development of projects referred to in Part VII.

### **Operations and Maintenance Costs**

182. These costs constitute about 30.8 per cent of the total 1956-57 estimates, compared with 28.2 per cent in 1955-56. By Service the estimates for the two years compare as follows:

	1956-57	1955-56
Navy .....	\$ 95,057,000	\$ 78,156,000
Army .....	127,202,000	120,824,000
Air .....	256,451,000	245,108,000

183. The increase in operations and maintenance costs is a consequence of the growth in the operations of the Defence Forces as additional personnel, plant and equipment have become available. In addition, higher wage costs have resulted in increased costs for civilian personnel. The following table provides a comparative breakdown by Service for 1956-57 and 1955-56 by the major classes of expenditures under this heading. The 1955-56 provision is shown in brackets.

	Navy \$000	Army \$000	Air \$000	Total \$000
Civilian Employment .....	36,719 (30,149)	63,976 (61,333)	47,638 (40,337)	148,333 (131,819)



Communications, Printing and Advertising .....	1,400 (1,416)	3,962 (4,258)	6,296 (5,771)	11,658 (11,445)
Barrack and Other Stores .....	15,494 (13,800)	18,614 (17,570)	16,800 (18,649)	50,908 (50,019)
Gasoline, Oil and Lubricants ....	5,150 (4,500)	2,832 (2,971)	33,865 (33,063)	41,847 (40,534)
Equipment Repairs and Spare Parts .....	25,325 (18,890)	10,201 (10,495)	119,751 (119,697)	155,277 (149,082)
Property and Building Maintenance including rentals, heating and utility services .....	8,803 (7,957)	24,294 (21,227)	29,357 (25,379)	62,454 (54,563)
Miscellaneous .....	2,166 (1,444)	3,323 (2,970)	2,744 (2,212)	8,233 (6,626)
Totals .....	95,057 (78,156)	127,202 (120,824)	256,451 (245,108)	478,710 (444,088)

### Construction

184. Excluding Mid-Canada Line, the construction programme for 1956-57 involves an estimated expenditure of \$145,931,000, as compared with \$145,298,000 in 1955-56. By Service the construction estimates compare as follows:

	1956-57	1955-56
Navy .....	\$11,200,000	\$14,000,000
Army .....	72,700,000	69,500,000
Air .....	56,889,000	57,090,000

185. The following table shows for each Service a break-down of the 1956-57 construction programme by type of construction. Comparable figures for 1955-56 are shown in brackets.

	Navy \$000	Army \$000	Air \$000	Total \$000
Station Development: (Barracks, mess-halls, hangars, supply depots, workshops, etc. ...)	6,917 (10,400)	50,611 (47,500)	36,349 (30,435)	93,877 (88,335)
Married Quarters and Schools ..	1,000 (2,000)	17,589 (17,000)	8,067 (8,319)	26,656 (27,319)
Airdrome Development .....	1,683 (Nil)	—	4,787 (9,154)	6,470 (9,154)
Others: (Minor construction projects, etc.) .....	1,400 (1,400)	3,000 (3,000)	4,797 (5,592)	9,197 (9,992)
Purchase of Property .....	200 (200)	1,500 (2,000)	2,889 (3,590)	4,589 (5,790)
Total .....	11,200 (14,000)	72,700 (69,500)	56,889 (57,090)	140,789 (140,590)

**DEPARTMENT OF NATIONAL DEFENCE**  
**Table of D.N.D. Appropriations and Expenditures by Major Categories**  
 (Thousands of Dollars)

Major Categories	1951-52		1952-53		1953-54		1954-55		1955-56		1956-57
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Estimates
Military Personnel Costs. ....	333,295	346,832	437,486	407,148	403,965	400,155	427,878	444,943	406,965	404,491	480,165
Operations and Maintenance. ....	367,005	379,678	475,886	409,266	464,963	439,087	515,324	486,491	525,563	524,818	570,560
Procurement of Equipment. ....	671,570	486,212	753,711	718,086	923,617	765,088	851,576	649,542	660,174	568,907	532,588
Construction. ....	209,416	173,336	243,834	266,399	224,382	166,861	184,222	123,421	145,298	135,814	145,931
Contributions to Infrastructure and NATO Budgets. ....		3,519	28,500	13,438	27,600	13,274	31,000	12,069	25,000	10,541	17,897
Mid-Canada Line. ....								833	40,000	46,327	100,000
Gross Cash Disbursements.	1,581,286	1,389,577	1,939,417	1,814,337	2,044,527	1,784,465	2,010,000	1,717,299	1,863,000	1,750,898	1,847,141
ADD: Mutual Aid Transfers of equipment credited to Special Accounts. ....	77,250	74,934	80,320	55,414	40,259	67,829	35,000	42,480	9,000	59,380	.....
DEDUCT: Charges to Special Accounts. ....	49,037	49,037	17,885	Cr 12,667	83,757	46,379	137,000	93,810	97,000	60,166	72,141
Budgetary Expenditures ...	1,609,499	1,415,474	2,001,852	1,882,418	2,001,029	1,805,915	1,908,000	1,665,969	1,775,000	1,750,112	1,775,000

**DEPARTMENT OF NATIONAL DEFENCE**  
**Comparison of Appropriations and Expenditures**  
(Thousands of Dollars)

D.N.D. Budgetary Components	1951-52		1952-53		1953-54		1954-55		1955-56		1956-57
	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Appropriations	Expenditures	Estimates
Navy (Cash Disbursements)...	236,051	182,371	288,225	260,296	332,356	289,031	337,281	304,166	323,318	340,808	325,000
Army (Cash Disbursements)...	508,342	473,066	549,485	503,390	533,007	436,376	506,595	454,391	500,312	461,438	476,739
Air (Cash Disbursements).....	727,632	650,525	871,832	912,710	1,018,019	914,984	989,500	814,733	880,404	798,248	872,383
DRB.....	32,496	35,394	42,000	42,989	42,000	40,807	50,400	49,851	52,578	64,358	79,032
Mutual Aid, Infrastructure and NATO Budgets.....	165,966	129,935	351,500	246,555	344,600	300,228	312,000	260,022	175,000	174,966	143,000
Administration, Pensions, etc....	43,849	41,772	49,217	48,681	59,615	56,812	60,727	57,010	63,272	59,747	68,283
Deduct: Credits to Service Expenditures from: (a) Mutual Aid Transfers of Equipment in current production for the Forces.....											
(b) NATO Aircrew Training.....	55,800	48,552	112,522	104,628	81,596	71,340	58,900	52,890	53,700	51,056	53,055
Charges to Special Accounts.....	49,037	49,037	17,885	Cr12, 667	83,757	46,379	137,000	93,810	97,000	60,166	72,141
Budgetary Expenditures....	1,609,499	1,415,474	2,001,852	1,882,418	2,001,029	1,805,915	1,908,000	1,665,969	1,775,000	1,750,112	1,775,000

**DEPARTMENT OF NATIONAL DEFENCE**  
**Canadian Contributions to Infrastructure and NATO Budgets**

(Thousands of Canadian Dollars) at 2.80 per 1£ Sterling

**I—CANADIAN PORTION OF INFRASTRUCTURE PROGRAMME**

Infrastructure Programme	Total Value of Programme	Total Canadian Obligation	Canadian contribution as Percentage of Programme
	\$	\$	\$
1951 Programme.....	349,440	15,480	4.43
1952 ".....	512,960	27,340	5.33
1953 " (1st Part).....	219,800	13,715	6.24
1953 " (2nd Part).....	187,600	13,375	7.13
1954 ".....	246,120	17,548	7.13
1955 ".....	250,600	17,868	7.13
1956 ".....	128,800	9,183	7.13
Totals.....	1,895,320	114,509	

**II—EXPENDITURES ON INFRASTRUCTURE BY FISCAL YEAR**

Fiscal Year	From Special Infrastructure Appropriation	From Mutual Aid Appropriation	Total Expenditure
1951-52 .....	1,770	.....	1,770
1952-53 .....	7,080(a)	1,198	8,278(a)
1953-54 .....	9,651	1,966	11,617
1954-55 .....	5,863	4,287	10,150
1955-56 .....	.....	9,434	9,434
1956-57 (Estimate).....	.....	16,397	16,397
Total Expenditures.....	24,364	33,282	57,646

(a) Expenditures of \$3,307,234 in 1952-53 on ex-infrastructure (i.e. on facilities over minimum SHAPE standards) are not included.

**III—EXPENDITURES FOR NATO BUDGETS BY FISCAL YEAR**

Fiscal Year	From Special Appropriation	From Mutual Aid Appropriation	Total Expenditures
1951-52 .....	1,749	.....	1,749
1952-53 .....	914	938	1,852
1953-54 .....	870	787	1,657
1954-55 .....	779	1,141	1,920
1955-56 .....	.....	1,107	1,107
1956-57 (Estimate).....	.....	1,500	1,500
Total Expenditures.....	4,312	5,473	9,785



# DEPARTMENT OF NATIONAL DEFENCE

## Expenditures on Mutual Aid Programmes by Fiscal Year

(Thousands of Dollars)

Elements of Programme	Expenditure 1950-51	Expenditure 1951-52	Expenditure 1952-53	Expenditure 1953-54	Expenditure 1954-55	Expenditure 1955-56	Estimate 1956-57
Procurement of Material for Mutual Aid.....	.....	2,930	32,833	33,181	25,079	15,758	7,807
Transfers of Equipment from Service Stocks.....	195,417	74,934	95,456	182,433	169,984	97,611	64,241
NATO Air Crew Training.....	.....	48,552	104,628	71,340	52,890	51,056	53,055
Infrastructure and NATO Budgets *.....	.....	.....	2,136	2,753	5,427	10,541	17,897
• TOTAL MUTUAL AID.....	195,417	126,416	235,053	289,707	253,380	174,966	143,000

(\*) These amounts represent only the portions (of Infrastructure costs and NATO Budgets) which were chargeable to Mutual Aid. In addition the following expenditures were charged to the special Infrastructure vote: 1951-52—\$3,519,000; 1952-53—\$11,302,000 (includes \$3,307,000 exinfrastructure); 1953-54—\$10,521,000; 1954-55—\$6,641,967; 1955-56—Expenditures all charged to Mutual Aid.

## DEPARTMENT OF NATIONAL DEFENCE

## Mutual Aid Programmes \*

Deliveries of Materials and Supplies by Recipient Countries, and NATO Aircrew Training  
Actual and Estimated Expenditures from Inception to March 31, 1956

(Millions of Dollars)

	Belgium	Denmark	France	Greece	Italy	Luxem- bourg	Nether- lands	Norway	Portugal	Turkey	United Kingdom	Total
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
TRANSFERS FROM STOCKS—												
Divisional Equipment.....	56.75	13.34	14.93		50.00		56.75	1.08	26.10	10.40		163.50
Armament.....	5.49	6.10	14.58		30.74	.73	2.61	3.47	10.48	2.85	5.70	111.12
Ammunition.....	17.73	3.96	7.09	.19	19.23	.61	8.83	1.45	8.36	8.24	1.72	89.00
Mechanical Equipment.....	.40	.06	11.25	.03	8.44	.01	7.17	.64	2.59	1.35		46.84
Electronic Equipment.....	.33				10.51		2.90			.88		30.06
Aircraft and Engines.....		.12					.14	1.26	.01		.69	3.10
TRANSFERS FROM NEW PRODUCTION—												
Armament.....	1.90	.15			2.64		.81			2.26		7.76
Ammunition.....	3.19	4.97	6.58		8.73		4.95	1.43	.94	2.90	18.19	51.88
Electronic Equipment.....	3.21	4.77	2.00	.20	9.56		5.97	1.46	.54	.14	19.11	47.56
Aircraft and Engines.....	1.19	.20	10.20	62.48	5.55		1.21	1.10	.46	65.64	110.40	258.43
Ships.....			26.42									26.42
TOTAL VALUE OF TRANSFERS.....	90.19	33.67	93.65	62.90	145.40	1.35	91.34	11.89	40.48	94.66	161.14	835.67
NATO Aircrew Training.....												328.47
Infrastructure and NATO Budgets.....												20.86
Further Anticipated Expenditures to 31 March 1956 ** .....												89.94
												1,274.94

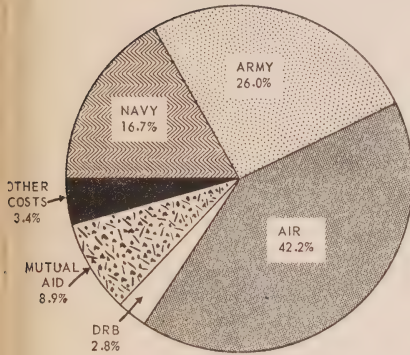
\* This statement is based on actual and estimated shipments of materials and supplies to March 31, 1956, and actual and estimated expenditures on NATO Aircrew Training to March 31, 1956.

\*\* Includes progress payments on production items, and financial charges on undelivered items.

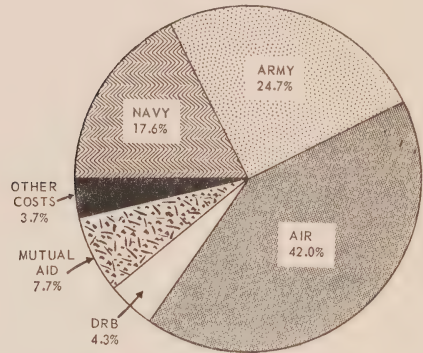
# DISTRIBUTION OF DEFENCE DOLLAR (CASH DISBURSEMENTS)

## BY SERVICES

1955-56

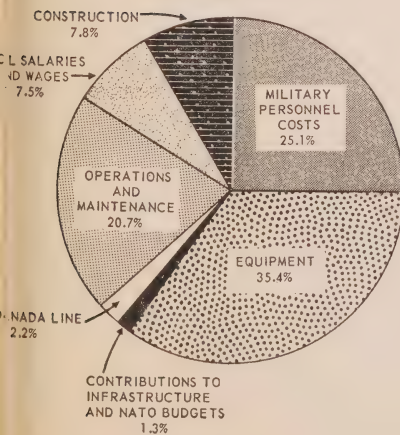


1956-57

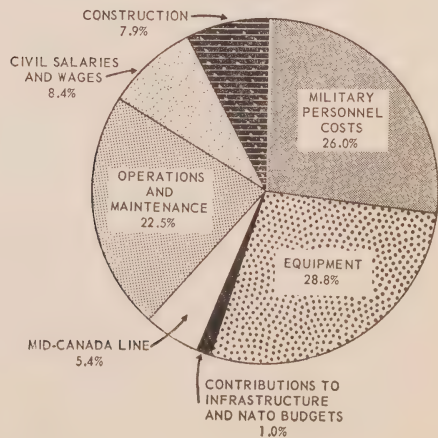


## BY REQUIREMENT

1955-56



1956-57

















Lacking 1957/58



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# DEFENCE 1959

**Hon. G. R. PEARKES, V.C.**  
Minister of National Defence

**APRIL, 1959**  
**OTTAWA**



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# **DEFENCE**

# **1959**

**Hon. G. R. PEARKEs, V.C.**  
Minister of National Defence

THE QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1959



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## PART I

### DEFENCE POLICY

#### Foreword

1. Canadian defence policy derives directly from our foreign policy and is designed to ensure national security and the preservation of world peace. These objectives are reached through collective arrangements within NATO and the United Nations. While the increased range of offensive weapons equipped with nuclear warheads brings the North American Continent within the target area in any future war, it is realized that the defence of this area cannot be considered in isolation. The advantage in collective defence within the framework of an alliance such as NATO is that an integrated balanced force can be provided by each member nation concentrating on the provision of those elements which constitute its particular needs and can be most effectively maintained.

2. In order to meet the objectives of the Alliance and in support of the United Nations, it is the defence policy of Canada to provide forces for:

- The defence against an attack on the North American continent;
- The collective defence and deterrent forces of NATO in Europe and the North Atlantic;
- The United Nations to assist that organization in attaining its peaceful aims.

3. Of necessity, there may be changes in emphasis but the basic principles underlying our defence policy continue to be valid. To ensure the efficient implementation of our commitments requires continuous study of the threat not only to the general NATO region but also to other areas of the world where situations may arise which would imperil the maintenance of

international stability.

4. The rapid scientific and technological advances of recent years and the fact that the development of offensive weapons has not been matched by comparable advances in defensive technology have increased the difficulty of anticipating weapons requirements. However, it is clear that the introduction of guided missiles into operational defensive and offensive roles will be much sooner than was envisaged only a short time ago. Recent indications are that the U.S.S.R. is modernizing her air, land and sea forces with special regard to missiles and increased mobility of field forces. These facts have resulted in decisions that will affect the organization and the equipment of the armed services of Canada.

5. The realization that the defence of the North American region of NATO is a joint Canada-United States responsibility has led to the formation of a joint air defence command, known as NORAD. Any improvements in the air defences of Canada can be considered as a strengthening of the overall deterrent system and it is logical that the cost of such improvements and the production of the required equipment should be shared on a mutually satisfactory basis. Accordingly, discussions are proceeding between the two governments concerning the principles that will be followed.

6. Arrangements have already been made for the division of responsibility concerning the expenditures involved in the extension and strengthening of the early warning system and the installation of Bomarc guided missile sites and related controls.

7. It is realized that the full potential of new defensive weapons is achieved only when they are armed with nuclear warheads. The government is, therefore, examining with the United States government questions connected with the acquisition of certain defensive nuclear warheads for use by Canadian forces in Canada. Consideration is also being given to the arming of the Canadian Brigade in Europe with short range nuclear weapons for NATO defence tasks. It has been made clear, however, that in order to assist in the limitation of the distribution of nuclear weapons it is not the intention to manufacture such weapons in

Canada. While ownership and custody of nuclear weapons required for Canadian defence forces will remain with the United States, their use from Canadian territory or in Canadian air space will depend on conditions previously agreed to by the Canadian government.

8. Insofar as anti-ICBM measures are concerned, Canada is working closely with her allies in various research projects aimed at the development of adequate defences. An example of such research is the study being made jointly by Canada and the United States into problems of long-range detection of ballistic missiles by means of high powered radar. The United States is planning the installation of units in the northern regions external to Canada which will serve to detect and give early warning against the ICBM. Information gathered through these units will be reported to NORAD Headquarters. In keeping with our joint efforts with the United States for the air defence of North America, the Canadian government is co-operating in the establishment of the necessary communication lines where these cross Canadian territory. In this work Canadian commercial facilities will be used.

9. The knowledge that an act of aggression would in all likelihood occur with little or no warning requires that Canadian defence forces be at a maximum state of readiness. Our Regular Forces are now organized and are of sufficient strength to be able to carry out defence commitments in an efficient and effective manner. In this regard the Royal Canadian Navy and the Maritime Command of the Royal Canadian Air Force operate together in a unified maritime command to defend Canada and her interests against attack from the sea. These maritime activities are closely co-ordinated with those of our NATO partners, in particular, the United Kingdom and the United States. The Canadian Army contributes to the maintenance of security by participating in the peace preserving endeavours of the United Nations with contributions to truce teams and to the United Nations Emergency Force in Egypt; by maintaining a Brigade Group in Germany as part of the North Atlantic Treaty Organization shield force and by its role in defence at home. The R.C.A.F. provides operational forces to assist in the defence of Canada and North America against attack from the air and the sea. The R.C.A.F. also forms part

of the NATO shield forces in Europe, lends assistance, when required, to the United Nations, and furnishes military air transport facilities.

## NATO

10. April 4, 1959 was the tenth anniversary of the formation of the North Atlantic Treaty Organization. Originally consisting of 12 nations including Canada, the alliance was expanded in 1951 to include Greece and Turkey and the Federal Republic of Germany was admitted to membership in 1954.

11. The NATO defence concept is based on the prevention of war by maintaining an effective deterrent. To improve the capabilities of the aircraft of the Strategic Air Command which are the main elements of the retaliatory forces of the deterrent, Canada has recently made available to the United States Air Force refuelling facilities at four air bases in Canada.

12. In order to ensure the integrity of the NATO area, shield forces consisting of ground and air forces, together with support missile elements, have been established in Europe. Canada contributes an Army Brigade of some 5,000 men, and the No. 1 Air Division of the R.C.A.F. consisting of 8 squadrons of F-86 day fighters and 4 squadrons of CF-100 all-weather interceptors. The Army Brigade Group is being strengthened by the introduction of the Lacrosse surface-to-surface guided missile. Canadian forces in Europe, together with contributions of other NATO countries, are under the command of Supreme Allied Commander, Europe, who is responsible to the Standing Group of NATO which body provides the highest strategic guidance in areas in which NATO forces operate.

13. Canada has also undertaken to provide in an emergency some 30 ships of the Royal Canadian Navy and 3 R.C.A.F. squadrons of maritime aircraft to the NATO Supreme Allied Commander, Atlantic. SACLANT is responsible for the seaward defences of the North Atlantic area.

## United Nations

14. Canada assists through its membership in the United



Nations towards the peaceful objectives of that Organization by contributing service personnel to the Truce Commissions in Kashmir, Palestine and Indo-China, the Emergency Force in Egypt and in the last year to the United Nations Supervisory Group in Lebanon.

15. At the present time there are some 900 members of the Canadian Regular Army and about 100 personnel of the Royal Canadian Air Force in Egypt as part of the United Nations Emergency Force. The cost of maintaining the Canadian contingent is borne in part by Canada and in part by the United Nations. Canada's share of these costs include pay and normal allowances of personnel, costs of initial equipment, transportation and freight costs for personnel and equipment within Canada. The United Nations directly assumes the cost of rations, a variety of operations and supplies, equipment, special clothing and the cost of rotating contingents.

## North America

16. Since the principal base of the deterrent forces of the West is on the North American Continent, it is important that adequate warning systems and defences be maintained to ensure the effectiveness of these forces.

17. The North American Air Defence Command, which came into being in 1957, was established to utilize the air defence forces of Canada and the United States in the most effective manner.

18. At the present time the CF-100 all-weather fighter is the main defensive aircraft in operation in the R.C.A.F. The nine squadrons equipped with these aircraft are located at St. Hubert, Ottawa, Bagotville, North Bay and Comox.

19. The decision not to proceed with the production of the CF-105 Arrow aircraft was announced on February 20, 1959. When the development of this aircraft was undertaken in 1952, it was estimated that there would be a need for a more advanced manned interceptor of this type to meet the bomber threat that was expected to have developed by 1958. It is now considered that the threat of the manned bomber is not as great as was

originally anticipated. Furthermore, by 1962 when the CF-105 would have come into operational use in the R.C.A.F., the main threat is expected to consist of long-range missiles rather than manned bombers. In view of these circumstances, the production of such an aircraft as the CF-105 in Canada was not considered justified.

20. The air defence system for the whole of the North American Continent calls for various types of weapons including manned interceptors and surface-to-air missiles. In the field of surface-to-air missiles it has been decided to introduce the Bomarc guided missile. The Bomarc squadrons located in Canada, together with those sited in the United States, will form part of NORAD's mutually supporting surface-to-air missile defence network.

21. To achieve maximum effectiveness in the operation of defensive weapons, SAGE electronic control and computing equipment is being provided. Measures are also being taken to extend and strengthen the Pinetree radar control system by adding several additional large radar stations and a considerable number of gap filler radars. The cost of these improvements is to be shared jointly by Canada and United States, with the United States paying approximately two-thirds and Canada one-third. These new facilities will be manned and operated by the R.C.A.F.

22. Ships and aircraft of the Royal Canadian Navy together with R.C.A.F. maritime forces operating under a joint maritime command assist in the defence of the North American continent against the threat from the sea which includes submarines, of which some have the capability of launching guided missiles armed with nuclear warheads. In addition to the 30 naval ships allocated to SACLANT, 14 anti-submarine vessels are in the Pacific area and minesweepers and local defence vessels are maintained on both coasts.

23. Three Brigade Groups of the Canadian Regular Army stationed at home provide a force to meet defence requirements in Canada; the necessary manpower for the rotation of the Brigade in Europe; and trained personnel for United Nations' tasks.

24. All the Regular and Reserve Forces in Canada, not directly engaged in activities against an aggressor, will be available for survival operations. The organization and training of the Regular Army and Militia are generally suitable for this role, in that they provide disciplined soldiers trained in the special skills needed. In fact, it is an extension of the role which the Army has undertaken for many years in aid of the civil power in national disasters. A small staff will be established at Army Headquarters in Ottawa to provide coordination and general supervision of survival plans and training. To facilitate co-operation with Provincial Governments some adjustments of command and area boundaries may be required in order that military and provincial regional responsibilities coincide. R.C.A.F. Auxiliary flying squadrons, which until this year were equipped with F-86 day-interceptor aircraft and had an air defence of Canada role, have now been assigned the role of search and rescue and aid in survival operations in the event of a nuclear attack on this country.

25. Regular and Militia units will be trained so that they can undertake reconnaissance and radiation monitoring and move into damaged areas to rescue and evacuate the injured. Also, training will be necessary in traffic control, road clearance, demolitions, bridging, assistance in the restoration of public utilities and in the maintenance of law and order.

26. Necessary equipment will be provided to meet these tasks. Mobile support columns will be provided with radiac equipment, rescue equipment, vehicles for evacuation and communication equipment to control operations. In order to control survival operations efficiently, radio communication connecting National Defence Headquarters to all its main camps and garrisons will be provided.

27. The equipment not needed for survival operations will be withdrawn gradually from the Militia as equipment for these operations is introduced. Selected members of the Militia will be attached to Regular army units in the summer to train on the type of equipment not available to the Militia.

28. Militia units will continue to retain their time-honoured traditional names, honours, dress, badges and affiliations. Although mobile support columns will have a general pattern of organization, major units of the artillery, armoured and infantry corps will form these columns with internal adjustments to their current establishments.

## Non-Operational Commitments

29. As well as carrying out its operational tasks, the Armed Forces also undertake a number of other commitments which are not essentially of a military nature.

30. The R.C.A.F. has the prime responsibility for co-ordinating search and rescue operations in Canada and off our coasts. It is assisted in this role by elements of the R.C.N. In accordance with international practice, especially in cases of marine distress, aircraft and ships of the Canadian Forces give assistance from time to time in emergencies outside of Canada's territorial limits. Similarly, our Search and Rescue Service has been assisted by ships and aircraft of other countries.

31. A responsibility undertaken by components of the Canadian Army is the maintenance of the Northwest Highway System. Although the Highway was originally constructed for military reasons, it now serves as an important means of access in the development of the northern regions of this country. The number of civilian vehicles making use of the Northwest Highway System now exceeds by a wide margin those of the military.

32. Assistance in civil emergencies is also provided by the Armed Forces and while the Army is responsible for co-ordination and control of such Service assistance, the R.C.N. and R.C.A.F. lend support whenever required.



## PART II

### RESEARCH AND DEVELOPMENT

1. The fundamental responsibility of the Defence Research Board is to provide well integrated and efficient scientific consulting services to the Minister of National Defence, to the Chiefs of Staff and to the Armed Forces.

2. The Board operates a total of 9 laboratories in Canada in which both basic and applied research is carried out. In the main, the programmes of each establishment cover projects which require collaboration with the Armed Forces and for which no other research facility is either equipped or available. The Board also supports a programme which is comprised largely of basic research in universities, other government research agencies and industry. This is done by means of grants-in-aid of research and by contracts in scientific fields of defence interest.

3. In attempting to assess the research requirements of the Armed Forces for the future, three highly complex problems are evident, namely, the Air Defence of North America; the Submarine Threat; the Deployment and Tactics of Ground Forces on an Atomic Battlefield.

4. The development of any given new devices and equipment can never be regarded as the ultimate; rather it is essential to carry research and development forward on a continuous basis and in the closest possible collaboration with our Allies.

5. The changing nature of the air threat from sub-sonic bombers to intercontinental ballistic missiles requires a continual revaluation of defensive measures. Atomic powered submarines capable of launching guided missiles with nuclear warheads are now possible. As with aircraft, distances have lengthened and the detection and destruction of under-sea craft

presents many new problems. The deployment and tactics of ground forces facing an enemy equipped with tactical atomic weapons creates many problems requiring solution through research and development.

6. The Defence Research Board has applied its resources to the solution of a number of problems. Among the many studies in progress, the following are of major interest.

7. A programme to study the behaviour of missiles in hypersonic flight is in progress at the Canadian Armament Research and Development Establishment. This is complementary to a similar programme in the United States and is designed to aid in the solution of specific aspects of the problem of detection. There is a complete exchange of information and a close working relationship with the United States.

8. Operational research groups are located in a variety of places such as Air Defence Command and NORAD to assist in the study and evaluation of present and proposed weapon systems and techniques for the air defence of North America.

9. A team of Naval Technical officers and scientists is now in the United Kingdom studying the use of nuclear propulsion in ships against the day when the R.C.N. may acquire nuclear powered ships and submarines.

10. Still other teams are working with the Army studying the effects of nuclear weapons on battlefield formation; future weapon systems, battlefield surveillance and the study of tactics.

11. In the field of aeronautics, studies are in progress to solve the problem of short take-off and landing and vertical take-off and landing of aircraft. Improvement in the performance of present aircraft of the Caribou type is anticipated as the result of applying new knowledge acquired from these studies.

12. A Tripartite Technical Cooperation programme has been established with the United Kingdom and the United States. It operates on the basis of a thorough understanding of the

research and development activities of each country and a free and complete exchange of information in all areas, restricted only by the laws of the country concerned.





## PART III

### TRI-SERVICE

#### Officer Production

1. To meet the expanding requirements of the Regular forces for career officers with the necessary academic education and military background, the Regular Officer Training Plan was instituted in 1952.
2. This plan embraces the Royal Military College of Canada at Kingston, Ontario, Royal Roads at Victoria, B.C., College Militaire Royal at Saint-Jean, Quebec, and the principal universities in Canada. Under the provisions of this plan the Department of National Defence pays for the education and living expenses of a number of selected candidates while they are at university or at one of the three services colleges. During his course of study, the candidate is enrolled as an officer cadet in the service of his choice. Upon graduating from university or a services college the officer cadet is granted a permanent commission in his service.
3. Since its inception, the ROTP has undergone a number of gradual changes of an evolutionary nature. During the past year, several major decisions have been reached, which it is anticipated will lead to improvements in the administration and output of this programme.
4. The Royal Military College of Canada has recently received a degree-granting charter from the Ontario Government. The College, therefore, will now be able to grant bachelor degrees in arts, science and engineering without the necessity of graduates attending a final year at university.
5. Until a few months ago matters affecting the ROTP were handled by a number of inter-service committees and service directorates. Co-ordinated control of the ROTP was difficult under this system. In September, 1958 the Directorate of the

Regular Officer Training Plan was established, headed by a senior officer to co-ordinate and deal with all matters affecting the ROTP and in particular the Canadian Services Colleges, on behalf of the Chiefs of Staff Committee and the services. This is a joint directorate composed of officers from the three Services and is controlled by the Chiefs of Staff through the three principal inter-service committees.

6. Studies are now being carried out aimed at increasing the quantity and quality of the intake into the ROTP by improved recruiting and selection methods, which it is hoped will reduce wastage rates to a minimum. These are long-term projects and the results that it is hoped to obtain from them will not be felt immediately. It is expected, however, that the ROTP will, to an increasing extent, help to meet the requirements of the Regular Forces for officers with the necessary academic education and military background.

### Integration

7. In view of the high cost of maintaining our forces to-day, it is essential that the utmost efficiency be achieved in order to make the best use of our resources and thus avoid unnecessary duplication and over-lapping of duties. Recognizing this necessity, some major changes have been made in the organization of the Chaplain, Medical and Recruiting Services.

8. On 22 September 1958, in the first step towards integration, two Chaplains General were appointed to replace the six former heads of chaplain services, and assumed the responsibility, so far as their respective religious components are concerned, for supervision over the chaplaincy in the three Services. Assisting them are Deputy Chaplains General representing each of the Services. The six former assistant directors of religious and moral training have been replaced by two Assistant Chaplains General who are responsible for chaplain training in the Canadian Forces.

9. On 1 December 1958, six integrated commands were formed, five in Canada and one overseas, which has resulted in the previous twenty-eight individual Service command chaplains being replaced by twelve command chaplains who exercise

supervision over chaplains of all three Services within their commands. This has permitted the appointment of a number of chaplains from administrative positions to the pastoral work for which they were ordained. Below command level, chaplains are continuing to function within their respective Services.

10. Following the decision to unify the three separate medical services the Canadian Forces Medical Service came into operation on January 15, 1959. On that date all medical service units and medical service personnel of the Three Armed Forces came under the direction of the Surgeon General, Canadian Forces.

11. The objectives of all planning in relation to the operation of the Canadian Forces Medical Service will be the provision of a single Medical Service for the Canadian Forces which will combine flexibility and maximum efficiency with due regard to economy in the utilization of trained medical human resources.

12. In November 1958 an Armed Forces Recruiting System was established under which all recruiting requirements for the Armed Forces will be co-ordinated through the Interservice Recruiting Committee. The individual service recruiting units, in those centres where two or three recruiting offices are located, will be amalgamated into combined accommodation to be known as "Canadian Armed Forces Recruiting Centres".

13. To date, the Canadian Armed Forces Recruiting Centres are in operation in Kingston, Fort William and Ottawa, Ontario. Plans are proceeding to establish recruiting centres in seventeen other major cities across Canada as suitable accommodation becomes available.





## PART IV

### DEFENCE APPROPRIATIONS AND EXPENDITURES

#### Defence Appropriations

1. The total appropriation requested for 1959-60 amounts to \$1,680,194,006 as compared with the 1958-59 appropriation of \$1,687,212,189, a decrease of \$7,018,183.

#### Cash Disbursements

2. The estimated cash disbursements in 1959-60 amount to \$1,695,194,006 which is \$15,000,000 in excess of the appropriation requested. This \$15,000,000 will be available in 1959-60 from the Special Account established under Section 11 of the National Defence Act. The funds in this account to be applied in 1959-60 are the balance of the proceeds of the sale of CF-100 aircraft to the United States as part of a joint Canadian - United States Mutual Aid programme undertaken in 1957 to supply some of these aircraft with supporting equipment and spares to Belgium.

3. In 1958-59 the provision for cash disbursements amounted to \$1,767,083,189 consisting of an appropriation of \$1,687,212,189 and funds from the Special Accounts amounting to \$79,871,000. Subsequently a decision was taken to liquidate fully in 1958-59 the Special Account established under the Defence Appropriation Act 1950 and accumulated through the transfer of equipment from the Canadian forces as Mutual Aid. This decision has had the effect of increasing Special Account charges in 1958-59 by \$161,868,027 with a corresponding saving in appropriation funds.

4. The tables on pages 48 and 49 show a comparison of the cash provision in the 1959-60 estimates and the 1958-59 estimates (a) by Service and (b) by cost category. These tables also show actual expenditures for each fiscal year since 1950-51 and forecasted expenditures for the fiscal year 1958-59.

## Comparison by Service

5. The cash provision in the 1959-60 estimates for each Service compares with the 1958-59 cash provision as follows:

<u>Service</u>	<u>1959-60 Estimates (\$000)</u>	<u>1958-59 Estimates (\$000)</u>	<u>Net Change (\$000)</u>
Navy	287,492	281,615	+ 5,877
Army	448,853	437,181	+ 11,672
Air	811,304	870,015	- 58,711
Defence Research Board	29,519	26,885	+ 2,634
Development	21,565	55,640	- 34,075
Mutual Aid	21,850	23,000	- 1,150
Other	<u>74,611</u>	<u>72,747</u>	<u>+ 1,864</u>
TOTAL	1,695,194	1,767,083	- 71,889

6. It will be noted that there are large decreases in the estimates for the RCAF and for development. In both cases this is attributable to the discontinuation of the Arrow programme. The provision in the 1959-60 estimates for the Arrow and associated items is \$53,800,000 of which \$47,500,000 is under the RCAF and \$6,300,000 under development. The 1958-59 estimates contained \$182,457,000 for these items of which \$138,467,000 was in the RCAF estimates and \$43,990,000 in development estimates.

7. The above table deals with the cash provision in the 1959-60 and the 1958-59 estimates and shows the net change by service between the two years. In order to reconcile the net changes in the Army and Air Force as shown in this table with the amounts shown on page 43 of the estimates, allowance must be made for the availability of special account funds in both fiscal years as

follows:

	<u>1959-60</u> <u>(\$000)</u>	<u>1958-59</u> <u>(\$000)</u>	<u>Net</u> <u>Change</u> <u>(\$000)</u>
<u>Army</u>			
Budgetary estimate	448,853	387,310	+ 61,543
Special Account Funds	<u>Nil</u>	<u>49,871</u>	- <u>49,871</u>
Cash provision	<u>448,853</u>	<u>437,181</u>	+ <u>11,672</u>
<u>Air Force</u>			
Budgetary estimate	796,304	840,015	- 43,711
Special Account Funds	<u>15,000</u>	<u>30,000</u>	- <u>15,000</u>
Cash provision	<u>811,304</u>	<u>870,015</u>	- <u>58,711</u>

8. While the provision for direct expenditures chargeable to Mutual Aid in 1959-60 shows little change from 1958-59, the total programme provided for is reduced by about a third from the 1958-59 estimates, mainly because of a reduction in the amount of equipment to be transferred from the Canadian forces stocks. The following table gives the comparative figures for the two years:

<u>Item</u>	<u>1959-60</u> <u>(\$000)</u>	<u>1958-59</u> <u>(\$000)</u>
Direct procurement	350	1,500
Contributions to Infrastructure and NATO Military Budgets	<u>21,500</u>	<u>21,500</u>
Total Direct Charges	21,850	23,000
Transfers of Equipment from Service Stocks	60,144	98,000
NATO Aircrew Training	<u>8,006</u>	<u>9,000</u>
Total Mutual Aid Programme	<u>90,000</u>	<u>130,000</u>

9. The amount of equipment that is available from the holdings of the Canadian forces for the purposes of Mutual Aid which could be used by other members of NATO is becoming limited as compared to earlier years.

10. Commencing April 1, 1959, the cost of repairing and transferring Service equipment as Mutual Aid as well as the cost of NATO aircrew training will be charged to the appropriation of the Service concerned and a memorandum record maintained of the value of these items for Mutual Aid. Consequently the 1959-60 Mutual Aid appropriation is confined to provision for direct expenditures only amounting to an estimated \$21,850,000.

### Comparison by Cost Category

11. The 1959-60 estimates of cash disbursement for each of the standard cost categories compares with the 1958-59 estimates as follows:

<u>Cost Category</u>	<u>1959-60 Estimates</u> (\$000)	<u>1958-59 Estimates</u> (\$000)	<u>Net Change</u> (\$000)
Military Personnel Costs	561,491	536,998	+ 24,493
Operations and Maintenance	631,935	609,806	+ 22,129
Procurement of Equipment	360,237	498,154	- 137,917
Construction	120,031	100,625	+ 19,406
Contributions to Infrastructure and NATO Military Budgets	21,500	21,500	-
	<u>1,695,194</u>	<u>1,767,083</u>	<u>- 71,889</u>



12. Military personnel costs refer to costs directly related to military personnel including pay and allowances, travelling expenses, medical and dental services, clothing and personnel equipment, food supplies and laundry and dry cleaning. The increased estimate is in the main due to additional provision for pay and allowances. The 1958-59 Estimate was based on an estimated strength of 118,500. Conditions for recruitment led to a more rapid increase towards authorized ceilings than estimated. The provision in 1959-60 is based on approximately 120,000. Also additional provision has had to be made to cover increases in the numbers qualified for trades pay, progressive pay, marriage and subsistence allowances. The overall increase in the estimate for pay and allowances is \$20,451,000. In addition, the estimate for travelling expenses is higher than 1958-59 by \$7,018,000 due to provision for rotation of two-thirds of the Brigade in 1959-60, an increase in postings in Canada because of re-adjustments in the RCAF consequent on a decrease in aircrew training for NATO and Germany and somewhat higher costs due to an increase in per diem travel allowances. In 1958-59 the policy of three year postings, in lieu of two year postings, to the Brigade was adopted. Under this policy it is planned to rotate one-third of the Brigade each year but this will not be fully effective until 1960-61.

13. The heading "Operations and Maintenance Costs" includes the costs of civilian salaries, contributions to pension funds, repair and upkeep of equipment and buildings and works, the rental of land and buildings, the cost of utility services, and a variety of recurring operating costs such as gasoline, freight, postage, etc. The civilian establishment for continuing positions provided for in 1959-60 is 1,092 less than in 1958-59. The provision for civil salaries is nevertheless increased by \$4,343,000. This is attributable to higher salary levels of prevailing rate staffs and provision for progressive increases to classified staffs. Otherwise the increases in this cost category are for the most part due to increased estimates of the cost of repair and upkeep of equipment. The total increase for these purposes is \$17,457,000 and reflects the increased expenditures for this purpose following on the build up of the forces and the major capital expenditures of the last ten years.

14. Military Personnel Costs and Operating and Maintenance Costs together are a rough approximation of annual operating costs, as distinct from capital costs. The table analyzing expenditures under these headings during the last ten years indicates clearly the progressively larger share of defence spending applied to these items. In 1952-53 about 45% of expenditures were for these purposes but in 1959-60 it is estimated some 70% will be applied to them.

## Equipment

15. As noted earlier the large decrease under the heading of major equipment is due to the cancellation of the Arrow programme including the ASTRA fire control system and the Sparrow missile. Some of the items included in the equipment programme are referred to below.

16. The ship construction programme for the Navy provides for the completion of the final three destroyer escorts of the original programme of fourteen St. Laurent and Restigouche class vessels. By the end of the current fiscal year approximately \$250,000,000 will have been spent on this ship construction and a further \$8,000,000 is included in the 1959-60 estimates. In addition, construction will continue on the first destroyer escort commenced in 1958-59 of the further programme of six ships of the Restigouche class and the next three ships of this programme will be started in 1959-60. The estimated cost of these ships is \$120,000,000, of which \$5,000,000 will have been spent by March 31, 1959 and \$15,000,000 is included in 1959-60. Additionally, provision is made in the amount of \$2,000,000 to commence a tanker supply ship. This ship will be in the order of 22,000 tons displacement and the construction cost is estimated at \$16,000,000.

17. Production of the CS2F Tracker aircraft for the Navy will continue, with final deliveries of these aircraft being scheduled for October 1960. Expenditures on this programme to the end of the current year will have been in the order of \$115,000,000 and the amount of \$21,500,000 is provided in 1959-60 estimates. The RCAF aircraft programme includes continued production of the Argus maritime reconnaissance aircraft and the CC-106 heavy

transport aircraft. The total cost of these programmes is estimated to be \$237,000,000 and \$119,000,000 respectively and approximately \$192,000,000 and \$39,000,000 will have been spent by March 31, 1959. Provision in 1959-60 for the Argus aircraft amounts to approximately \$33,000,000 and for the heavy transports \$48,000,000. In addition, the production of ten CC-109 medium range transport aircraft will be completed with estimated expenditures in 1959-60 of approximately \$13,000,000. The total cost of this programme is estimated at \$21,000,000. The RCAF aircraft programme also includes provision for the procurement of aircraft having an amphibious capability suitable for employment in the air-sea search and rescue role. These aircraft will replace the now obsolete Cansos which have been in service for many years. It is estimated that a total of 10 aircraft will be required and the total cost will be approximately \$14,000,000.

18. Provision is made in the Army estimates for the introduction of the Lacrosse surface to surface missile for the European Brigade including launching and fire control equipment. The amount provided for this purpose in 1959-60 is \$473,000. Provision is included in the amount of \$1,360,000 for continuing development work on the Army all-purpose vehicle known as the Bobcat.

## Construction

19. In addition to the first phase of the Sage-Bomarc-Heavy Radar construction programme, the 1959-60 estimates provide for the continuation of station development projects at naval, military and air bases throughout Canada. Projects commenced in 1958-59 under the Supplementary Capital Works Programme involve estimated expenditures in 1959-60 of \$36,837,000. One of the major projects in this programme is the DND Medical Centre in Ottawa which is expected to be about 50 per cent completed in 1959-60. Improved housing and school facilities are being provided at many stations including the RCAF Pinetree units. This entails the continuation of construction of housing units already programmed plus a further 370 new units planned for 1959-60.

20. Under the cost sharing arrangements with the United States covering the construction of additional radar sites and gap

fillers for the Pinetree system and the introduction of Bomarc missiles and Sage electronic control equipment, the construction of bases and the provision of unit equipment, estimated at approximately one-third of the total cost, will be provided by Canada. The estimated cost of the items to be provided by Canada is approximately \$125,000,000 of which \$10,000,000 is included in the 1959-60 estimates.

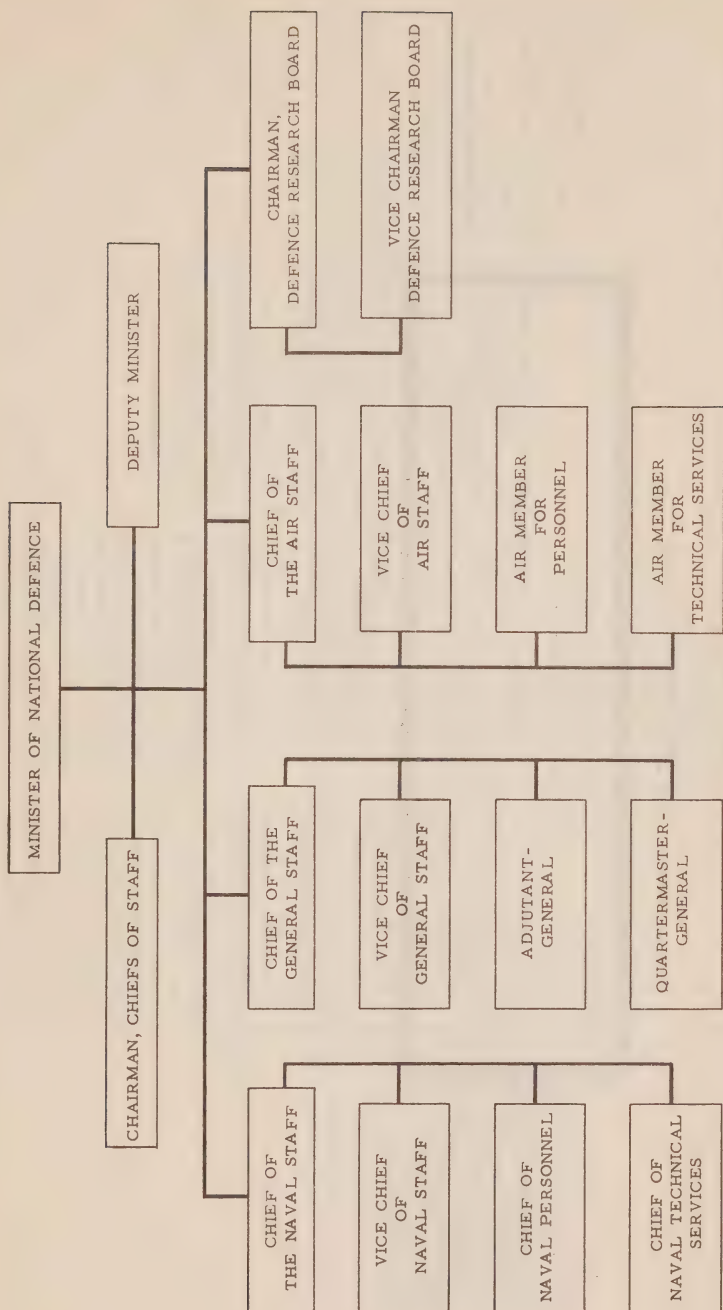
## **Parliamentary Vote Structure**

21. As a result of a recommendation by the Standing Committee on Estimates, a new parliamentary vote structure is introduced into National Defence estimates in 1959-60 whereby fifteen parliamentary votes numbered 214 to 228 replace a single defence services vote. In general this provides for two separate votes for each of the services, and the Defence Research Board, one dealing with operation and maintenance costs and the other with construction and equipment costs of a capital nature. Separate votes are also provided for Development and for Mutual Aid.

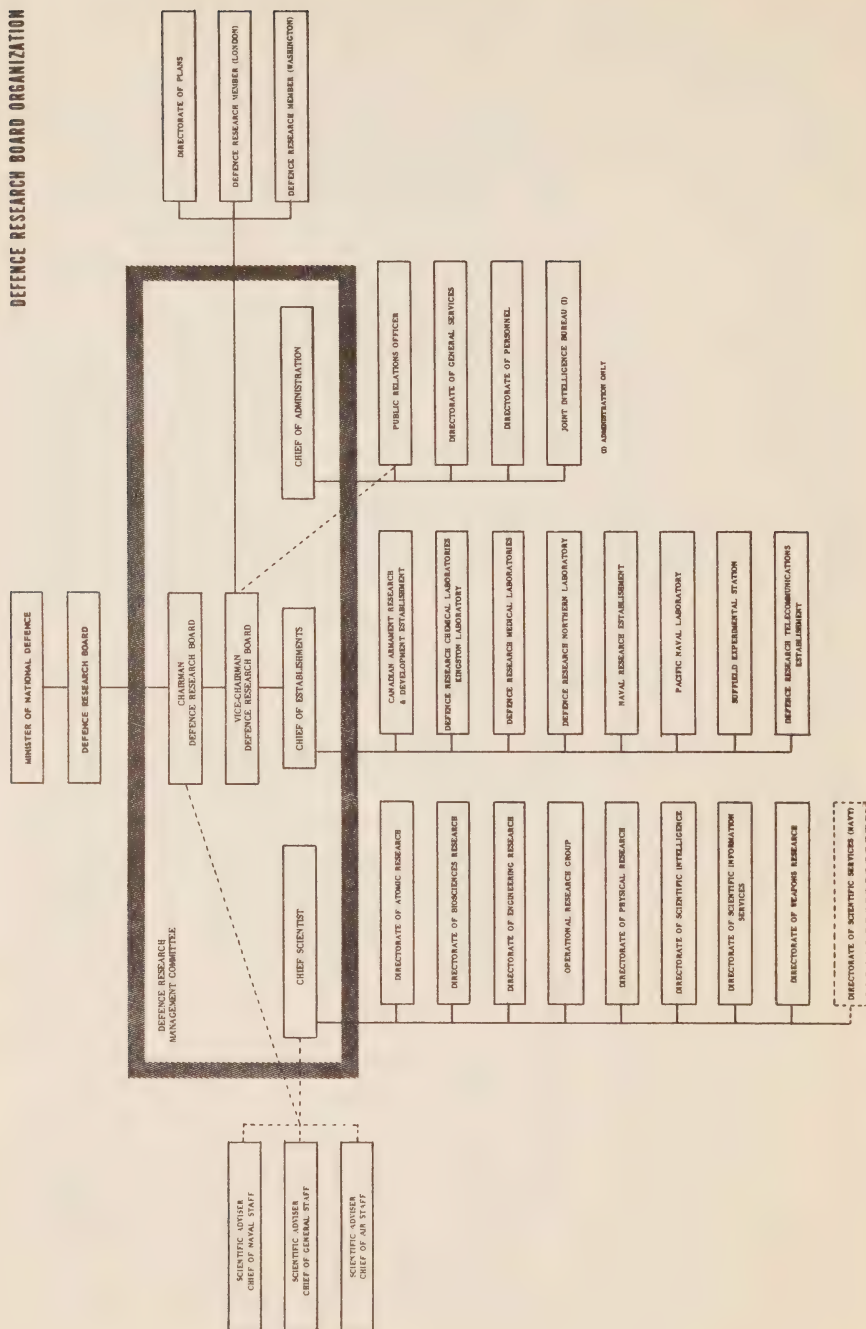
22. While votes 214 to 227 inclusive provide for separate cash appropriations in 1959-60 for each service, vote 228 contains general provision for commitments in respect of all of these expenditure votes. The commitment authority thus provided is subject to allotment by the Treasury Board to meet the commitment requirements of each service. This will enable a continuation of the practice of previous years with respect to commitment control notwithstanding the change in appropriation votes.



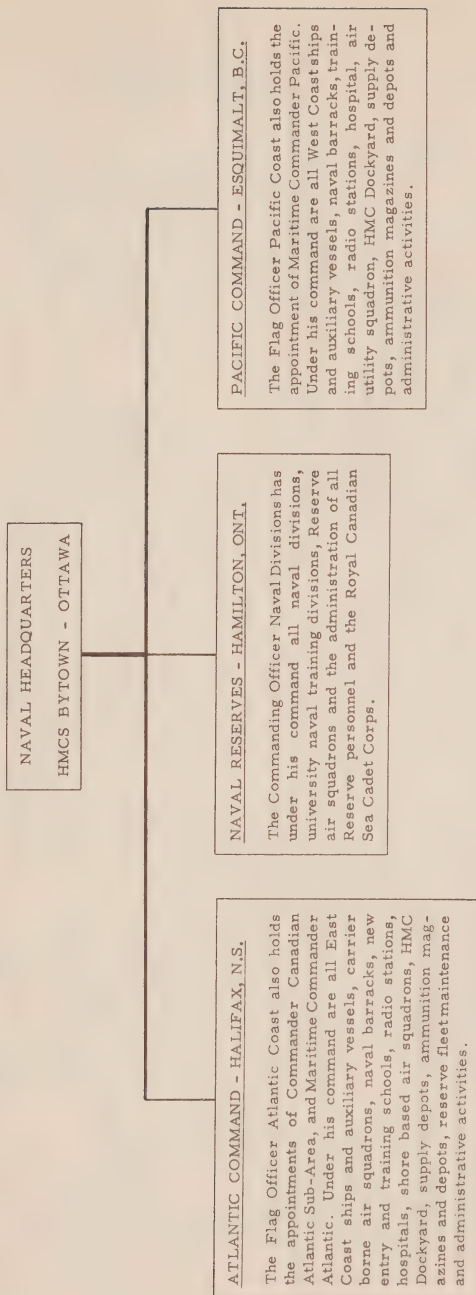
DEPARTMENT OF NATIONAL DEFENCE



**DEFENCE RESEARCH BOARD ORGANIZATION**

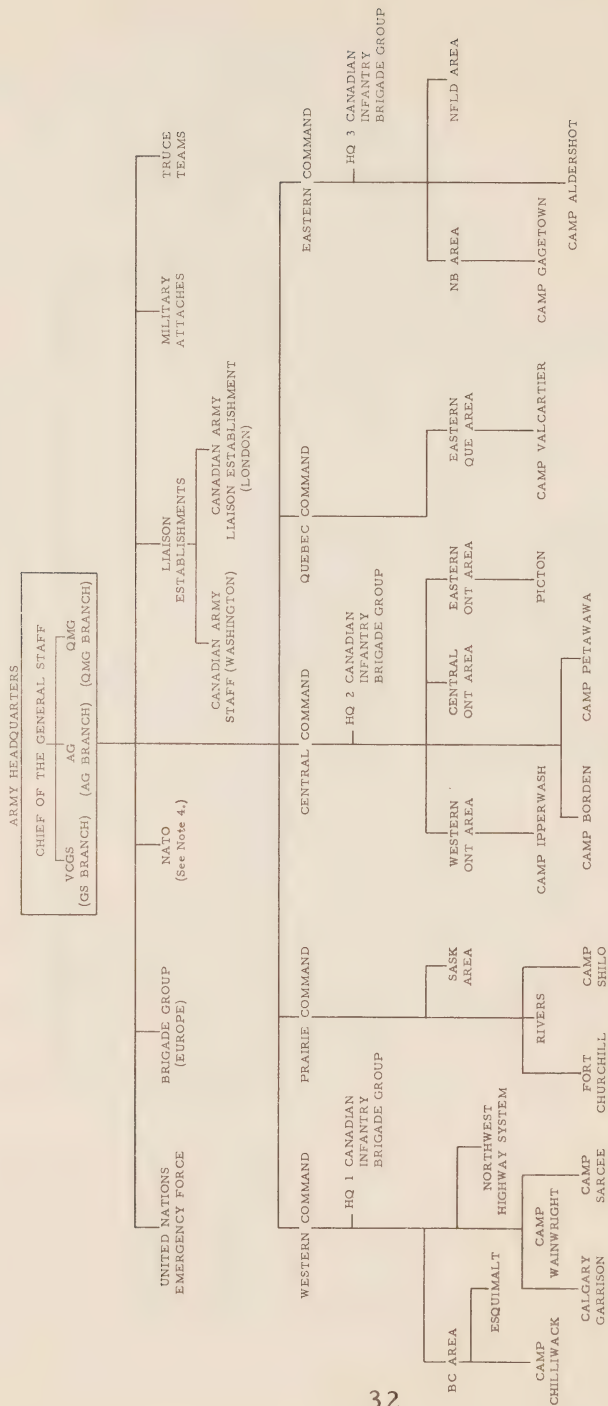


# COMMAND ORGANIZATION - ROYAL CANADIAN NAVY



# ORGANIZATION CHART - CANADIAN ARMY

(Command Structure)

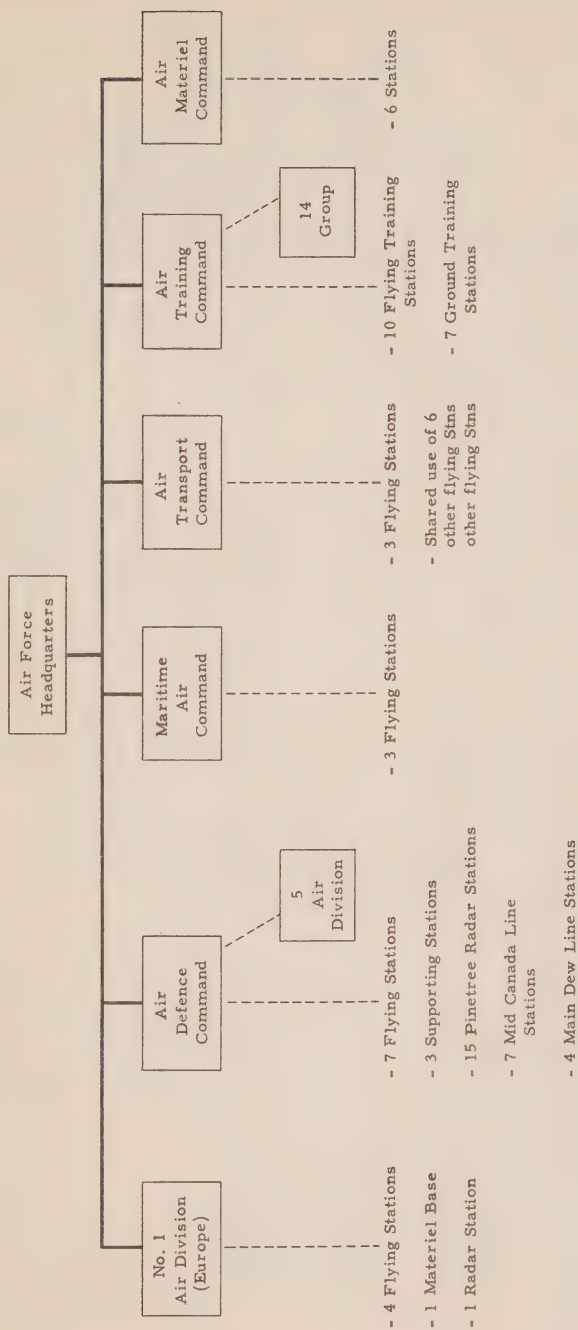


## NOTES

1. RIVERS has been shown as a camp. Although tri-service, it has an army component.
2. The Headquarters of 1, 2 and 3 CIBGs are in WESTERN, CENTRAL and EASTERN Commands respectively, however units of these Brigade Groups are located in all Commands.
3. The Canadian Army (Militia) is organized into 25 Militia Groups reporting to their respective Area or Command Headquarters.
4. Canadian Units and personnel forming part of NATO Headquarters.



# COMMAND ORGANIZATION OF THE RCAF



NOTE: - (i) Headquarters Air Transport Command to be transferred in 1959 from Lachine, P.Q. to Trenton, Ont.  
 (ii) Headquarters Air Training Command to be transferred in 1959 from Trenton, Ont. to Winnipeg, Man.

# OPERATIONAL UNITS - ROYAL CANADIAN NAVY

2 March, 1959

## PACIFIC COMMAND

<u>Squadron</u>	<u>Type</u>	<u>Units</u>
Second Canadian Escort Squadron	Destroyer Escort	ASSINIBOINE, ST. LAURENT, SAGUENAY, FRASER, MARGAREE, OTTAWA, SKEENA
Fourth Canadian Escort Squadron	Frigate	SUSSEXVALE, ANTIGONISH, BEACON HILL, STE THERESE, NEW GLASGOW, JONQUIERE, STETTLE, NEW WATERFORD
Second Minesweeping Squadron	Minesweeper	FORTUNE, JAMES BAY, MIRAMICHI, COWICHAN

## ATLANTIC COMMAND

<u>Squadron</u>	<u>Type</u>	<u>Units</u>
	Aircraft Carrier	BONAVENTURE
First Canadian Escort Squadron	Destroyer Escort	ALGONQUIN, HAIDA, HURON, IROQUOIS, NOOTKA
Third Canadian Escort Squadron	Destroyer Escort	CRESCENT, CAYUGA, ATHABASKAN, SIOUX, CRUSADER
Fifth Canadian Escort Squadron	Destroyer Escort	GATINEAU, RESTIGOUCHE, ST. CROIX
Seventh Canadian Escort Squadron	Frigate	FORT ERIE, LA HULLOISE, OUTREMONT, BUCKINGHAM, SWANSEA
First Minesweeping Squadron	Minesweeper	RESOLUTE, FUNDY, QUINTE, CHALEUR, CHIGNECTO, THUNDER
	Repair Ship	CAPE SCOTT
		2 squadrons Banshee aircraft
		2 squadrons Tracker aircraft
		1 squadron Helicopters

# MAJOR OPERATIONAL FORMATIONS AND UNITS

## CANADIAN ARMY (REGULAR)

FEBRUARY 1959

### FORMATION AND UNITS

### LOCATION

#### 1 Canadian Infantry Brigade Group (Western Canada)

Headquarters, 1 Canadian Infantry Brigade Group	Calgary
Lord Strathcona's Horse (Royal Canadians) (less Reconnaissance Squadron)	Calgary
2nd Regiment, Royal Canadian Horse Artillery	Winnipeg
3rd Field Squadron, Royal Canadian Engineers	Vedder Crossing, BC
1st Battalion, Princess Patricia's Canadian Light Infantry	Esquimalt
2nd Battalion, Princess Patricia's Canadian Light Infantry	Edmonton
1st Battalion, The Queen's Own Rifles of Canada	Calgary
Ancillary Supporting Signal and Service Units	( Calgary
	( Winnipeg
	( Edmonton

#### 2 Canadian Infantry Brigade Group (Central Canada)

Headquarters, 2 Canadian Infantry Brigade Group	Petawawa
The 1st Fort Garry Horse	Petawawa
4th Regiment, Royal Canadian Horse Artillery	Petawawa
1st Field Squadron, Royal Canadian Engineers	Petawawa
1st Battalion, The Canadian Guards	Petawawa
1st Battalion, The Royal Canadian Regiment	Ipperwash
2nd Battalion, The Royal Canadian Regiment	London
Ancillary Supporting Signal and Service Units	( Borden
	( Petawawa

#### 3 Canadian Infantry Brigade Group (Eastern Canada)

Headquarters, 3 Canadian Infantry Brigade Group	Gagetown
1/8th Canadian Hussars (Princess Louise's) (Less "A" Squadron)	Gagetown
"A" Squadron, 1/8th Canadian Hussars (Princess Louise's)	Valcartier
3rd Regiment, Royal Canadian Horse Artillery (less "X" Battery)	Gagetown
"X" Battery, 3rd Regiment, Royal Canadian Horse Artillery	Valcartier
2nd Field Squadron, Royal Canadian Engineers	Gagetown
1st Battalion, Royal 22e Regiment	Quebec, PQ
2nd Battalion, Royal 22e Regiment	Valcartier
1st Battalion, The Black Watch (Royal Highland Regiment) of Canada	Aldershot
2nd Battalion, The Black Watch (Royal Highland Regiment) of Canada	Gagetown
Ancillary Supporting Signal and Service Units	( Gagetown
	( Valcartier

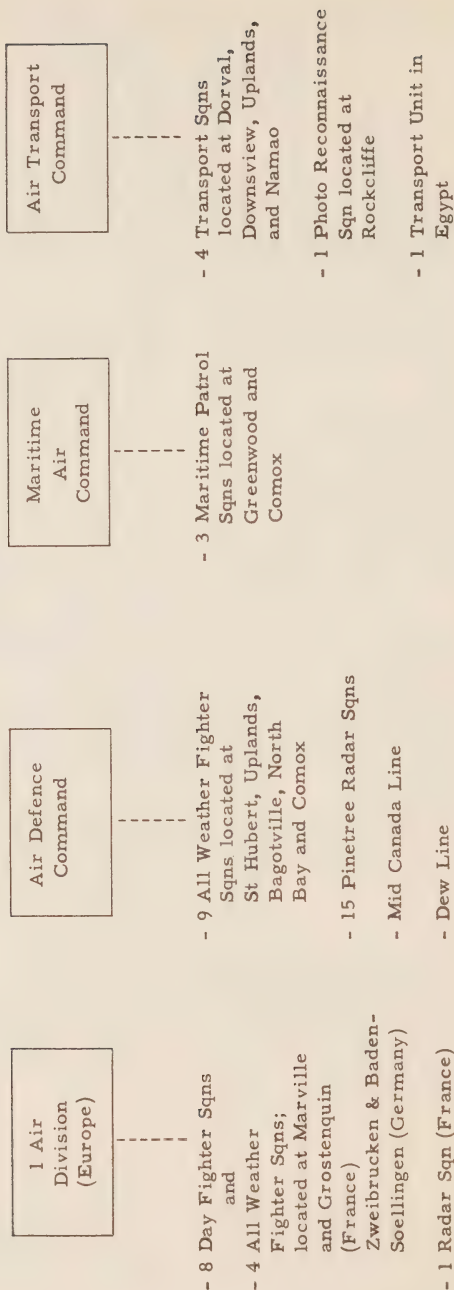
#### 4 Canadian Infantry Brigade Group (Western Germany)

Headquarters, 4 Canadian Infantry Brigade Group	Soest
The Royal Canadian Dragoons (less Reconnaissance Squadron)	Iserlohn
Reconnaissance Squadron, Lord Strathcona's Horse (Royal Canadians)	Soest
1st Regiment, Royal Canadian Horse Artillery	Hemer
4th Field Squadron, Royal Canadian Engineers	Werl
2nd Battalion, The Canadian Guards	Soest
3rd Battalion, Royal 22e Regiment	Werl
2nd Battalion, The Queen's Own Rifles of Canada	Hemer
Ancillary Supporting Signal and Service Units	( Soest
	( Werl
	( Iserlohn
	( Hemer

#### Canadian United Nations Emergency Force

Canadian Base Unit, Middle East	Middle East
Reconnaissance Squadron, The Royal Canadian Dragoons	Middle East
56 Canadian Signal Squadron, RC Sigs	Middle East
56 Canadian Transport Company, RCASC	Middle East
56 Canadian Infantry Workshop, RCEME	Middle East

## RCAF OPERATIONAL FORCE





PRINCIPAL TRAINING ESTABLISHMENTS - ROYAL CANADIAN NAVY

<u>Name</u>	<u>Location</u>	<u>Major Components</u>	<u>No. Trained in 1958</u>
HMCS STADACONA	Halifax, NS	Atomic, Biological and Chemical Warfare and Damage Control School	4,334
		Communications Training Centre	437
		Electrical School	981
		Gunnery School	5,317
		Mechanical Training Establishment	433
		Navigation Director School	897
		Ordnance Training Centre	182
		Seamanship School	290
		Torpedo/Anti-Submarine School	2,617
Naval Supply Centre	Montreal, PQ	Supply School	934
HMCS GLOUCESTER	Gloucester, Ont.	Communications (Supplementary) Training School	170
HMCS CORNWALLIS	Cornwallis, NS	New Entry Training School	2,218
		Communications School	313
		Leadership School	642
HMCS SHEARWATER	Dartmouth, NS	Naval Aircraft Maintenance School	602
		Naval Aircrew Training School	144
HMCS NADEN	Esquimalt, BC	Atomic Biological and Chemical Warfare and Damage Control Training Centre	512
		Communications Training Centre	239
		Gunnery Training Centre	256
		Medical Branch School	171
		Naval Technical School	902
		Navigation Direction Training Centre	521
		Seamanship Training Centre	563
		Torpedo/Anti-Submarine Training Centre	958
HMCS D'IBERVILLE	Quebec, PQ	English Language Training, Basic Discipline, Seamanship, etc. for French-speaking Recruits	247

PRINCIPAL TRAINING ESTABLISHMENTS  
CANADIAN ARMY (REGULAR)  
(Excluding Tri-Service Establishments)

1. The following are the principal Army training establishments, together with locations and numbers receiving training in 1958:

<u>SCHOOLS</u>	<u>LOCATION</u>	<u>Numbers trained in 1958</u>
Royal Canadian Armoured Corps School	Camp Borden, Ont	1333
Royal Canadian School of Artillery	Camp Shilo, Man	1993
Royal Canadian School of Artillery (Anti-Aircraft) & Missile Training	Picton, Ont	799
Royal Canadian School of Military Engineering	Vedder Crossing (Chilliwack) BC	1466
Royal Canadian School of Signals	Barriefield, Ont	1906
Royal Canadian School of Infantry	Camp Borden, Ont	1961
Royal Canadian Army Service Corps School	Camp Borden, Ont	1919
Royal Canadian Army Medical Corps School	Camp Borden, Ont	922
Royal Canadian Dental Corps School	Camp Borden, Ont	228
Royal Canadian Ordnance Corps School	Montreal, Que	1469
Royal Canadian Electrical and Mechanical Engineers School	Barriefield, Ont	966
The Canadian Provost Corps School	Shilo, Man	689
Royal Canadian Army Pay Corps Wing	Barriefield, Ont	194
Canadian School of Military Intelligence	Camp Borden, Ont	418
Canadian Army Training School	Camp Valcartier, PQ	567
Canadian Army Physical Training Wing	Camp Borden, Ont	357
Canadian Army Staff College	Kingston, Ont	62
<u>INFANTRY REGIMENTAL DEPOTS</u>	<u>LOCATION</u>	<u>No. Completing Recruit Trg - 1958</u>
Canadian Guards Depot	Petawawa, Ont	301
Princess Patricia's Canadian Light Infantry Depot	Edmonton, Alta	214
The Royal Canadian Regiment Depot	London, Ont	213
Royal 22e Regiment Depot	Valcartier, PQ	418
The Queen's Own Rifles of Canada Depot	Calgary, Alta	306
The Black Watch (Royal Highland Regiment) of Canada	Gagetown, NB	502

# PRINCIPAL TRAINING ESTABLISHMENTS

## ROYAL CANADIAN AIR FORCE

1	<u>Aircrew Training Establishments</u>		
<u>LOCATION</u>	<u>PURPOSE</u>	<u>ANNUAL TRAINEES</u>	
Primary Training School, Station Centralia	To conduct a pre-flight course of academic and officer training subjects for observer and pilot trainees.	673	
Primary Training School (Flying), Station Centralia	To conduct a primary flying training course for pilot trainees.	270	
Flying Training School, Station Penhold	To conduct a basic flying training course for pilot trainees.	269	
Flying Training School, Station Moose Jaw	As above.	306	
Advanced Flying School, Station Portage	To conduct an advanced T33 flying training course for pilot trainees.	277	
Advanced Flying School, Station Gimli	As above.	340	
Advanced Flying School, Station Saskatoon	To conduct an advanced twin engine flying training course for pilot trainees.	51	
Flying Instructor School, Station Trenton	To produce qualified jet and piston engine flying instructors.	146	
Air Observer School, Station Winnipeg	To conduct a basic observer course and applied courses in navigation, radio and air interception.	196	
2	<u>Principal Ground Training Establishments</u>		
<u>LOCATION</u>	<u>PURPOSE</u>	<u>ANNUAL TRAINEES</u>	
1 Radio & Communications School, Station Clinton	To train personnel in radio, radar and communications trades and to conduct guided missile indoctrination courses.	5069	
Technical Training School, Station Camp Borden	To train personnel in Armament, Aircraft, Photographic and Aircraft Control Trades.	2266	
1 Supervisors Service Training School, Station Camp Borden	To develop leadership and executive ability of senior NCOs and to improve their general service knowledge.	800	
1 Technical Training School, Station Aylmer	To train personnel in mobile equipment supply, safety equipment and administrative trades.	1644	
1 Manning Depot, Station St Jean	To provide reception, outfitting as necessary and basic training, including English, for RCAF airmen and airwomen recruits.	~ 4665	

LOCATIONPURPOSEANNUAL  
TRAINEES

1 Officers School,  
Station Centralia

To train newly enrolled non-flying  
list officers, and commissioned  
from the ranks officers, in their  
executive responsibilities; to  
train French-speaking Flight  
Cadets in English; to prepare  
officers of all lists for  
appointment to junior  
administrative positions.

511

1 Meteorological School,  
Station Trenton

To train meteorological officers  
and observers.

68

1 School of Instructional  
Technique

To provide personnel selected  
for instructional duties with a  
basic knowledge of the principles  
and techniques of instruction.

659

3                   The foregoing units are operated by a Training Command Headquarters  
located at Station Trenton and a Training Group located at Station Winnipeg.



## STRENGTH OF ARMED FORCES

## REGULAR FORCES - INCLUDING OFFICER CADETS AND APPRENTICES

	NAVY			ARMY			AIR FORCE		
	Officers	Other Ranks	Total	Officers	Other Ranks	Total	Officers	Other Ranks	Total
December 31, 1955	2,772	16,451	19,223	5,751	41,411	47,162	9,601	40,729	50,330
December 31, 1956	2,785	16,220	19,005	5,869	41,763	47,632	10,105	40,435	50,540
December 31, 1957	2,801	17,014	19,815	5,966	41,972	47,938	10,315	41,346	51,661
March 31, 1958	2,760	17,107	19,867	5,935	41,538	47,473	10,277	41,421	51,698
December 31, 1958	2,841	17,411	20,252	5,972	42,710	48,682	10,260	41,654	51,914
Women are included above as follows:									
December 31, 1955	77	55	132	168	30	198	301	2,651	2,952
December 31, 1956	83	104	187	153	42	195	308	2,469	2,777
December 31, 1957	77	111	188	155	29	184	349	2,385	2,734
March 31, 1958	76	100	176	157	41	198	338	2,462	2,800
December 31, 1958	79	113	192	152	75	227	321	2,442	2,763
									3,282
									3,159
									3,106
									3,174
									3,182

## RESERVE FORCES

	RCN(R) ACTIVE LIST			CANADIAN ARMY (MILITIA)			RCAF AUXILIARY		
	Officers	Other Ranks	Total	Officers	Other Ranks	Total	Officers	Other Ranks	Total
December 31, 1955	1,704	3,927	5,631	7,263	37,822	45,085	1,901	3,873	5,774
December 31, 1956	1,818	3,921	5,739	6,981	35,231	42,212	1,958	3,642	5,600
December 31, 1957	1,683	3,198	4,881	6,666	36,439	43,105	1,964	3,295	5,259
March 31, 1958	1,579	2,948	4,527	6,595	34,752	41,347	1,848	2,902	4,750
December 31, 1958	1,057	2,487	3,544	6,202	35,438	41,640	1,633	2,632	4,265
Women are included above as follows:									
December 31, 1955	140	682	822	320	2,023	2,343	147	690	837
December 31, 1956	157	615	772	305	2,184	2,489	145	621	766
December 31, 1957	144	479	623	332	2,279	2,611	145	540	685
March 31, 1958	131	451	582	333	2,274	2,607	136	479	615
December 31, 1958	77	364	441	319	2,113	2,432	129	388	517
									4,002
									4,027
									3,919
									3,804
									3,390

# SERVICE STRENGTHS (REGULAR FORCE) AT N.D.H.Q. AT SELECTED DATES

	Tri-Service*		Navy		Army		RCAF		Total	
	Off.	Men	Off.	Men	Off.	Men	Off.	Men	Off.	Men
March 31, 1955	75	69	334	45	650	747	561	293	1620	1154
March 31, 1956	77	81	334	51	655	757	602	291	1668	1180
March 31, 1957	71	98	346	74	653	717	654	333	1724	1222
March 31, 1958	73	97	362	70	688	718	684	339	1807	1224
December 31, 1958	83	107	361	63	647	684	753	357	1844	1211

\* The tri-service category includes, e.g. Minister's office, Joint Staff, Office of Chairman Chiefs of Staff, Security Guard, Identification Bureau, Directorate of Inter-Service Development, Judge Advocate General, Joint Intelligence Bureau, Personnel Members Committee, Canadian Military Electronics Standards Agency.

## ENROLMENTS AND WASTAGE-REGULAR FORCES

	RCN	ARMY	RCAF
1955			
Enrolments . . . . .	3,088	5,937	8,153
Net Wastage . . . . .	2,671	8,222	6,573
* Percentage Net Wastage . . . .	13.9	17.0	13.2
1956			
Enrolments . . . . .	2,686	7,409	7,186
Net Wastage . . . . .	2,904	6,939	6,976
* Percentage Net Wastage . . . .	15.3	14.6	13.9
1957			
Enrolments . . . . .	3,347	7,952	8,440
Net Wastage . . . . .	2,537	7,646	7,319
* Percentage Net Wastage . . . .	13.2	16.2	14.3
1958			
Enrolments . . . . .	2,990	6,477	5,785
Net Wastage . . . . .	2,553	5,733	5,532
* Percentage Net Wastage . . . .	12.7	12.0	10.7

\* - Percentage Net Wastage based on average strength.

# DEPARTMENT OF NATIONAL DEFENCE

## CIVILIAN STAFF

SERVICE	CONTINUING EMPLOYEES								CASUAL EMPLOYEES **			
	Establishment *				Strength				Strength			
	1956-57	1957-58	1958-59	1959-60	31 Dec 55	31 Dec 56	31 Dec 57	31 Dec 58	31 Dec 55	31 Dec 56	31 Dec 57	31 Dec 58
Navy	12,616	12,499	11,973	11,973	11,258	11,550	11,669	11,508	1,243	989	1,277	1,623
Army	20,771	20,459	19,841	19,334	18,912	18,618	18,937	18,675	1,895	1,334	1,158	1,521
Air Force	15,006	15,171	14,866	14,442	13,867	14,220	14,544	14,190	1,851	2,218	1,539	1,768
D.R.B.	2,940	3,028	2,926	2,926	2,511	2,622	2,709	2,756	206	201	152	142
Administration	776	774	710	693	703	705	683	644	-	-	-	-
Inspection	2,257	2,033	1,707	1,563	2,058	1,732	1,520	1,380	3	3	-	-
War Museum	5	5	-	-	5	5	5	-	-	-	-	-
TOTALS	54,371	53,969	52,023	50,931	49,314	49,452	50,067	49,153	5,198	4,745	4,126	5,054

\* The total continuing establishment shown for the Army includes Command Pool positions amounting to 1,200 for 1956-57, 1,075 for 1957-58 912 for 1958-59 and 895 for 1959-60.

\*\* Includes all non-continuing or casual employees, except those in Army Command Pool numbering 1347 on 31 December 1955, 703 on 31 December 1956, 681 on 31 December 1957, and 651 on 31 December 1958.



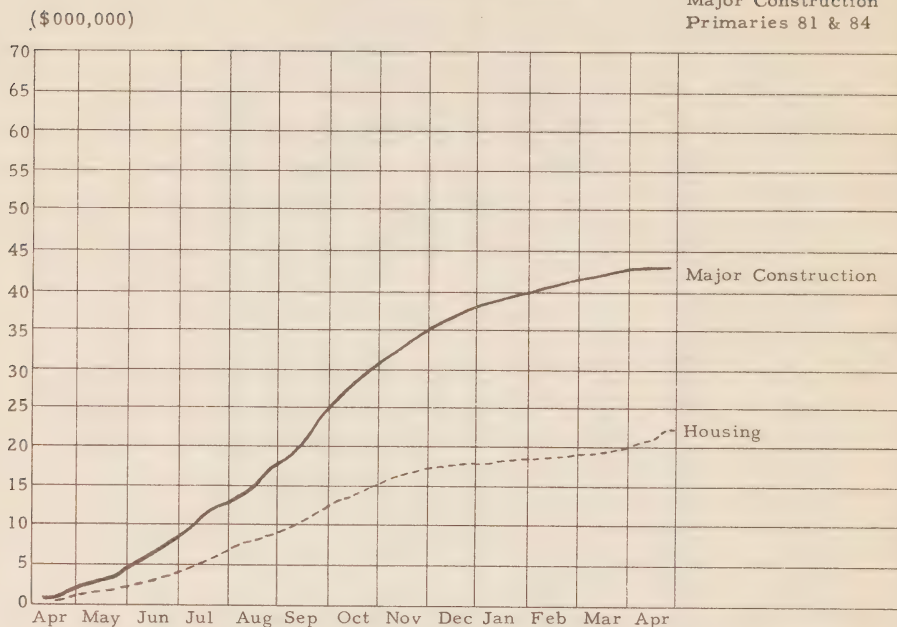
CIVILIAN STRENGTH AT N.D.H.Q. BY SERVICE FOR SELECTED DATES

	Admin- istration	In- spec- tion Services	Inter- Service	Navy	Army	RCAF	Defence Research Board	Total
March 31, 1955	631	430	257	1,234	1,197	592	415	4,756
March 31, 1956	624	381	179	1,338	1,175	643	474	4,814
March 31, 1957	634	374	219	1,392	1,141	726	488	4,974
March 31, 1958	585	363	214	1,506	1,083	753	504	5,008
December 31, 1958	565	355	211	1,541	1,395	751	467	5,285

# ESTIMATED AND ACTUAL EXPENDITURE

FISCAL YEAR 1958-59

Major Construction  
Primaries 81 & 84

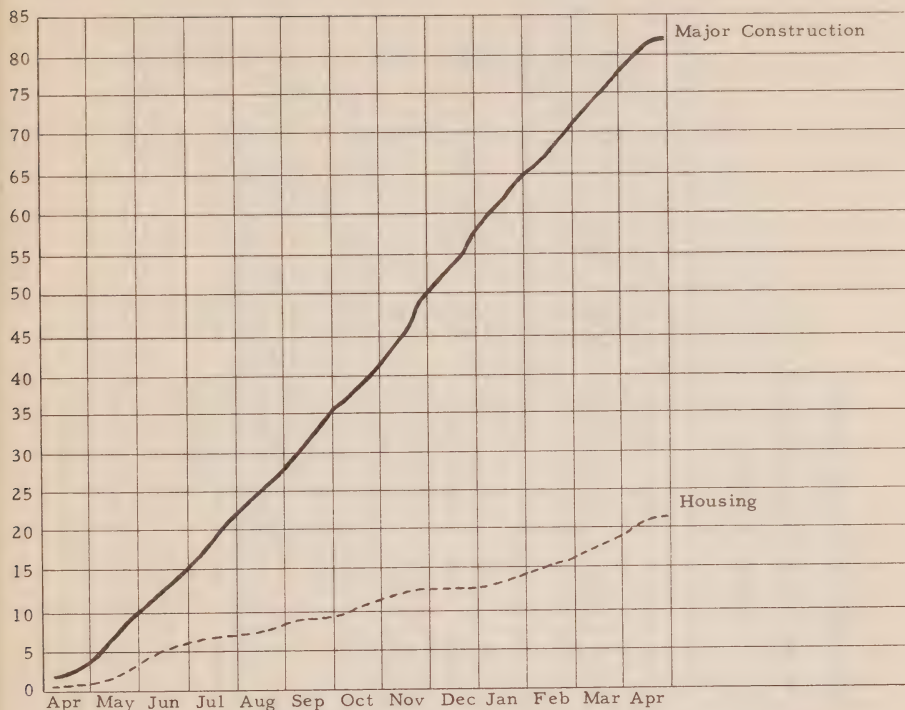


(Note.- During 1958-59 the major contract awards were for 6 barrack blocks; 6 messes; 4 medical equipment depots; 2 warehouses; 5,000 garages for married quarters; 9 service garages and stations; 1 Tri-Service Medical Centre at Ottawa; 10 transmitter and receiver stations; 2 control towers; 3 hangars; 1 runway, and other technical, administrative, and domestic accommodation. Awards were also made for the construction of 2,017 married quarters and 17 new schools or additions to existing schools.)

ESTIMATED EXPENDITURE  
FISCAL YEAR 1959-60

(\$000,000)

Major Construction  
Primaries 81 & 84



(Note.- During 1959-60, a major portion of the expenditure will cover continuation and partial completion of the 1958-59 programme, with the balance providing for completion of the Emergency Employment Programme initiated in 1958, together with the initial portion of the SAGE - Bomarc and Radar projects. The above includes 370 housing units approved for 1959, as well as some additional units required for the SAGE - Bomarc - Radar programme.)

# DEPARTMENT OF NATIONAL DEFENCE

## Comparison of Expenditures by Fiscal Year

(Thousands of Dollars)

DND Budgetary Components	1950-51 Expendi- tures	1951-52 Expendi- tures	1952-53 Expendi- tures	1953-54 Expendi- tures	1954-55 Expendi- tures	1955-56 Expendi- tures	1956-57 Expendi- tures	1957-58 Expendi- tures	1958-59		1959-60 Estimates
									Appro- priations	Expendi- tures (*)	
Navy (Cash Disbursements)	99,849	182,371	260,296	289,031	304,166	340,808	326,699	294,989	281,615	273,450	287,492
Army (Cash Disbursements)	231,665	473,066	503,390	436,376	454,391	461,438	459,452	424,654	437,181	422,076	448,853
Air (Cash Disbursements)	230,553	650,525	912,710	914,984	814,733	798,248	863,100	813,768	870,015	789,309	811,304
Defence Research Board	11,924	18,376	23,782	23,568	26,329	31,547	24,095	25,242	26,885	28,113	29,519
Development	11,491	17,018	19,207	17,239	23,522	32,811	45,228	53,424	55,640	54,546	21,565
Mutual Aid, Infrastructure and NATO Budgets	195,417	129,935	246,355	300,228	260,022	174,966	133,553	118,464	130,000	97,000	90,000
Administration, Pensions, etc.	20,889	41,772	48,681	56,812	57,010	59,747	66,239	70,149	72,747	72,105	74,611
DEDUCT:											
(a) Mutual Aid Transfers of Equipment from Service Stocks	-	-	40,042	114,604	127,504	38,231	63,679	78,399	98,000	75,200	60,144
(b) NATO Aircrew Training	-	48,552	104,628	71,340	52,890	51,056	47,753	26,418	9,000	7,300	8,006
Charges to Special Accounts	19,886	49,037	cr 12,667	46,379	93,810	60,166	47,508	27,410	79,871	237,416	15,000
BUDGETARY EXPENDITURES	781,902	1,415,474	1,882,418	1,805,915	1,665,969	1,750,112	1,759,426	1,668,463	1,687,212	1,416,683	1,680,194

\* Forecast expenditures



# DEPARTMENT OF NATIONAL DEFENCE

Table of DND Expenditures by Major Categories

(Thousands of Dollars)

Major Categories	1950-51 Expendi- tures	1951-52 Expendi- tures	1952-53 Expendi- tures	1953-54 Expendi- tures	1954-55 Expendi- tures	1955-56 Expendi- tures	1956-57 Expendi- tures	1957-58 Expendi- tures	1958-59		1959-60 Estimates
									Appro- priations	Expendi- tures (*)	
Military Personnel Costs	184,301	346,832	407,148	400,155	444,943	464,491	500,261	544,835	536,998	545,701	561,491
Operations and Maintenance	191,660	379,678	409,266	439,087	486,491	524,818	563,097	603,099	609,806	601,982	631,935
Procurement of Equipment	144,590	486,212	718,086	765,088	649,542	568,907	458,637	412,354	498,154	414,843	360,237
Construction	85,820	173,336	266,399	166,861	123,421	135,814	140,430	91,907	100,625	77,073	120,031
Contributions to Infrastructure and NATO Budgets	-	3,519	13,438	13,274	12,069	10,541	14,040	10,468	21,500	12,000	21,500
Mid-Canada Line	-	-	-	-	833	46,327	130,469	33,210	-	2,500	-
GROSS CASH DISBURSEMENTS	606,371	1,389,577	1,814,337	1,784,465	1,717,299	1,750,898	1,806,934	1,695,873	1,767,083	1,654,099	1,695,194
ADD: Mutual Aid Transfers of equipment credited to Special Accounts	195,417	74,934	55,414	67,829	42,480	59,380	-	-	-	-	-
DEDUCT: Charges to Special Accounts	19,886	49,037	cr 12,667	46,379	93,810	60,166	47,508	27,410	79,871	237,416	15,000
BUDGETARY EXPENDITURES	781,902	1,415,474	1,882,418	1,805,915	1,665,969	1,750,112	1,759,426	1,668,463	1,687,212	1,416,683	1,680,194

\* Forecast expenditures

# DEPARTMENT OF NATIONAL DEFENCE

## Expenditures on Mutual Aid Programmes by Fiscal Year

(Thousands of Dollars)

Elements of Programme	Expenditure 1950-51	Expenditure 1951-52	Expenditure 1952-53	Expenditure 1953-54	Expenditure 1954-55	Expenditure 1955-56	Expenditure 1956-57	Expenditure 1957-58	Forecast 1958-59	Estimate 1959-60
Procurement of Material for Mutual Aid	-	2,930	32,833	33,181	25,079	15,758	8,081	3,179	2,500	350
Transfer of Equipment from Service Stocks	195,417	74,934	95,456	182,433	169,984	97,611	63,679	78,399	75,200	60,144
NATO Air Crew Training	-	48,552	104,628	71,340	52,890	51,056	47,753	26,418	7,300	8,006
*Infrastructure and NATO Budgets	-	-	2,136	2,753	5,427	10,541	14,040	10,468	12,000	21,500
Total Mutual Aid	195,417	126,416	235,053	289,707	253,380	174,966	133,553	118,464	97,000	90,000

\* These amounts represent only the portions of Infrastructure costs and NATO Budgets which were chargeable to Mutual Aid. In addition the following expenditures were charged to the special Infrastructure Vote:

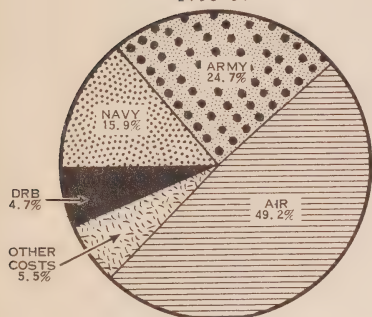
1951-52 - \$3,519,000; 1952-53 - \$11,302,000 (includes \$3,307,000 ex-infrastructure); 1953-54 - \$10,521,000; 1954-55 - \$6,641,967.  
In subsequent years, all expenditures charged to Mutual Aid.

# DISTRIBUTION OF DEFENCE DOLLAR

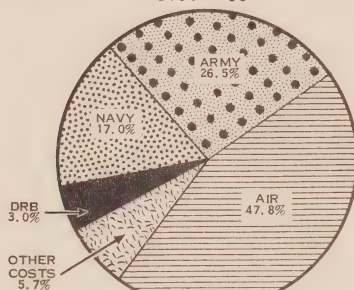
(CASH DISBURSEMENTS)

## BY SERVICES

1958-59

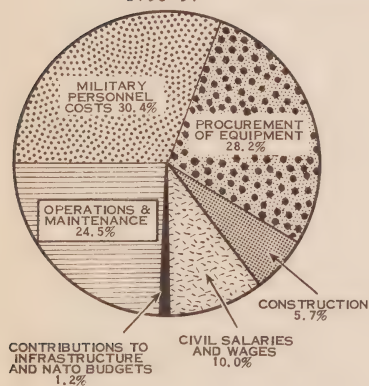


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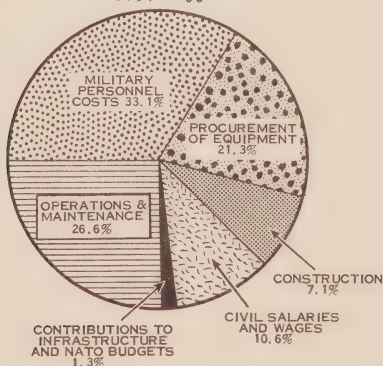


## BY REQUIREMENT

1958-59



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